

SERV. 9809

SAMSUNG

VIDEO CASSETTE RECORDER

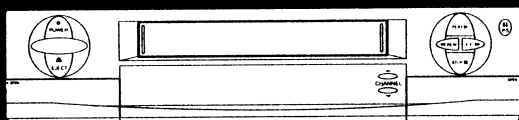
SV-30XK/SV-31XK

SV-40XK

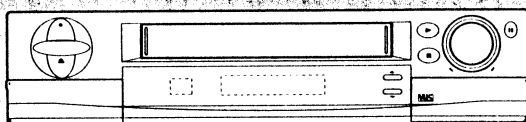


SERVICE Manual

VIDEO CASSETTE RECORDER



SV-30XK/SV-31XK



SV-40XK

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IMPORTANT SERVICE GUIDE

1. SERVICING FEATURES OF THE X-5 CHASSIS

After replacing the cylinder ass'y, the remote control (part number : **69099-633-252**) can be used to adjust the "X-point tracking center adjustment (tape path alignment) and "head s/w point" adjustment. The remote control part number '**633-252**' is printed on the inlay of remote control.

1) How to adjust "X-point tracking center" when adjusting tape path alignment :

Press the '**1**' button and the '**INPUT**' button simultaneously. This will adjust the tracking center automatically.

2) How to adjust "head s/w point" :

Press the '**3**' button and the '**INPUT**' button simultaneously. This will automatically position the H'd s/w at $6.5H \pm 0.5H$.

If the remote control is not available :

- See page 9-3 of service manual for X-point tracking center adjustment.
- See page 9-9 of service manual for Head S/W Point adjustment.

2. SERVICE GUIDE

1) For this VCR chassis, the program switch and the sensors (start/end/reel) are located on the main PCB, not on the deck ass'y.

2) As long as the deck ass'y is connected to the main PCB, all repairs are possible.

Important : In order to repair the main PCB without the deck ass'y connected, the X-5 chassis jig should be used.

3) To emulate the function of the sensors, connect a jumper or solder land (two point) at W751 on the function-timer PCB.

4) The X-5 chassis jig can be used for the following :

- When repairing or confirming the operation of the deck ass'y.
- When replacing or repairing the components located under the deck ass'y.
- When repairing the function-timer PCB.

5) The X-5 chassis jig can not be used for the following :

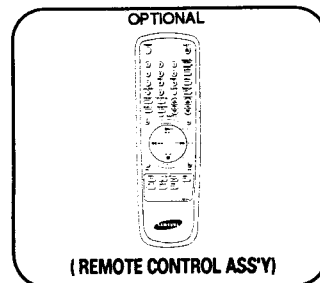
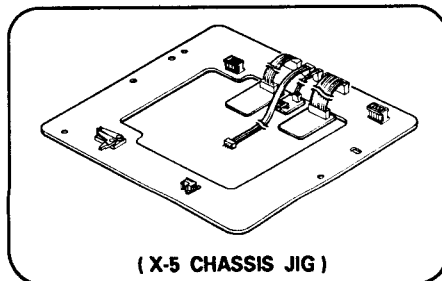
- Repairing defects in the video section.
- Repairing defects in the audio section.
- If the defect is related to tape speed.

✱ Accurate repair may not be possible due to external noise between the deck ass'y and main PCB.

✱ If tape control signal is not connected to the jig, VCR must be operated in SP mode.

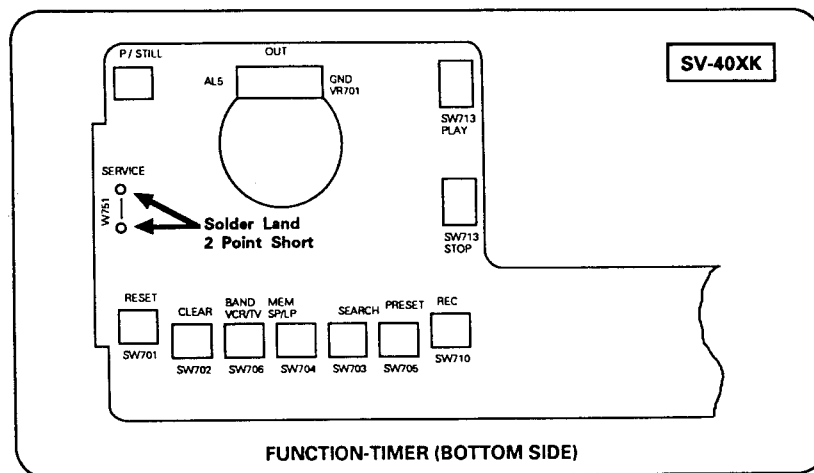
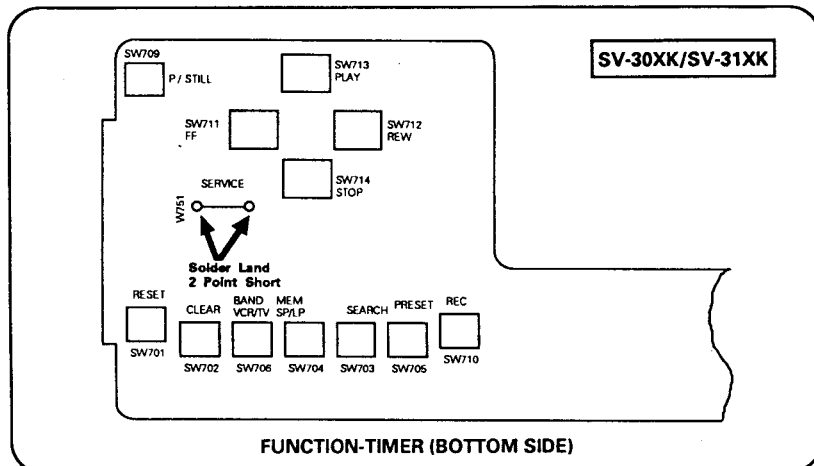
3. SERVICE JIG

JIG ITEM	PART NO.	USE
X-5 CHASSIS JIG	68140 - 500 - 013	Connects the dexk ass'y to the main PCB connecting cable.
REMOTE CONTROL ASSY	69099 - 633 - 252	X-point tracking center & head S/W point adjustment.

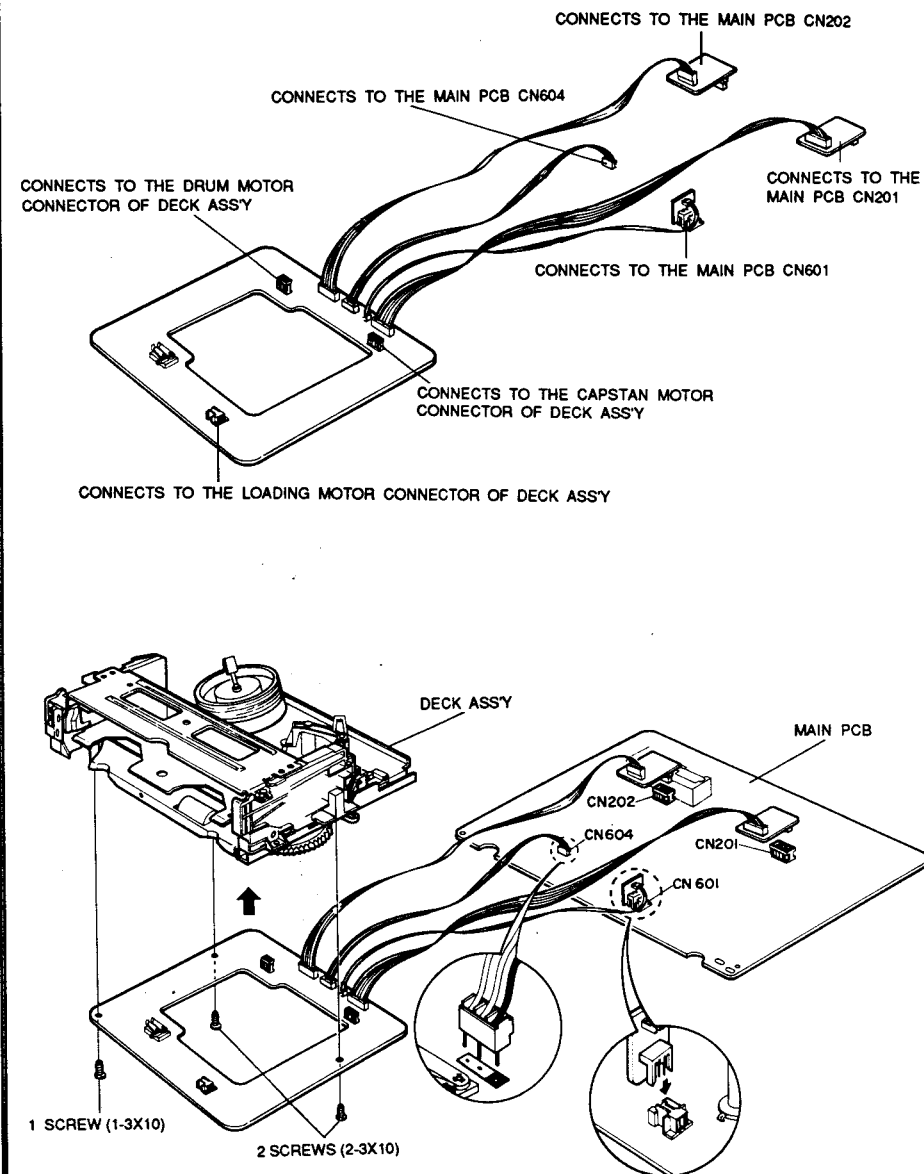


4. HOW TO CONNECT X-5 CHASSIS JIG

- 1) Unplug the power cord from AC outlet.
- 2) Remove the deck ass'y from main PCB (See page 3-3 of service manual).
- 3) To emulate the function of the sensors, place a jumper or solder land (two point) of W751 on the function-timer PCB (See diagram below).



NOTE : After completing repairs, press SW701 on the function-timer PCB in order to reset.



- 4) Insert wafers of drum motor, capstan motor and loading motor on X-5 chassis jig into each connectors of deck ass'y and then secure with three screws.
- 5) Solder the 3 leads of the jig cable to the CN604 on the main PCB.
- 6) Apply power to the function-timer PCB.
- 7) Insert a test tape into the housing ass'y.
- 8) Simultaneously touch the start and end sensor LEDs on the PCB, so that the tape loads automatically. After the tape is loaded, all of the function buttons on the function-timer PCB can be used.
- 9) If the test tape is ejected while the jig is in use, attempt to re-load the tape by simultaneously touching the start and end sensor LEDs. If the tape still does not load, reset the function-timer PCB by pressing SW701.

1. PRECAUTIONS

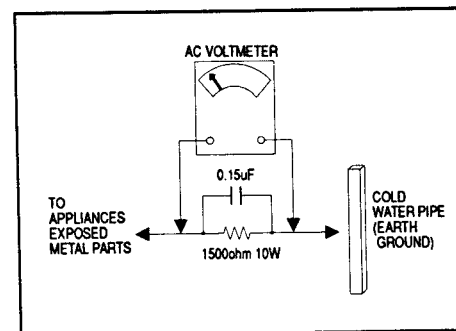
1-1. SAFETY PRECAUTIONS

GENERAL GUIDE LINE

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation paper shields are properly installed.
3. Use an isolation transformer when servicing.
4. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screw heads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 to 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be ∞ .



LEAKAGE CURRENT HOT CHECK (See Fig.)

1. Plug the AC cord directly into the AC outlet. (Do not use an isolation transformer for this check.)
2. Connect a 1.5K, 10 watt resistor, in parallel with a 0.15µF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.

6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester may be used to make the hot checks, leakage current must not exceed 0.5 milliamp. If a measurement is outside the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

1-2. ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called "Electrostatically Sensitive (ES) Devices". Examples of typical ES devices are integrated circuits, some field effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise, harmless motion such as the brushing together of your clothes fabric to the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

1-3. SAFETY INSTRUCTIONS

- 1. Read Instructions :** All the safety and operating instructions should be read before the unit is operated.
- 2. Retain Instructions :** The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings :** All warnings on the unit and the operating instructions should be adhered to.
- 4. Follow Instructions :** All operating and maintenance instructions should be followed.
- 5. Cleaning :** Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a dry cloth for dusting cabinet.
- 6. Attachments :** Do not use attachments not recommended by the unit product manufacturer, as they may be hazardous or cause damage.
- 7. Water and Moisture :** Do not use this unit near water, i.e., bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, or the lake.
- 8. Accessories :** Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit, if dropped could cause damage or injury. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the unit. Any mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.
 - a. An appliance and cart combination should be moved with care. Quick stops, excessive force, or an uneven surface may cause the appliance and cart combination to overturn.

PORTABLE CART WARNING (Symbol provided by RETAC)



- 9. Ventilation :** Slot and opening in the cabinet are provided for ventilation to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered. Never place your unit on a bed, sofa, rug, or similar surface, or on or near a radiator or heat register. This unit should not be placed in a built-in installation such as a book case or rack unless proper ventilation is provided, or manufacturer's instructions have been adhered to.
- 10. Power Sources :** This unit should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. To operate the unit by battery or other power source, consult the operating instructions.
- 11. Grounding and Polarization :** This unit may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug, a plug having a third (grounding) pin. The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your outlet. Do not defeat the safety purpose of the polarized plug.
- 12. Power-Cord Protection :** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. This applies especially to cords of plugs and convenience receptacles, at the point where they exit from the unit.
- 13. Lightning :** For added protection of this unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage of the unit from lightning and power-line surges.
- 14. Power Lines :** An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
- 15. Overloading :** Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
- 16. Objects and Liquids :** Never push objects of any kind into the unit as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquids of any kind onto the unit. Should a spill occur, unplug unit and have it checked by a technician before using.

- 17. Servicing :** Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service person.

- 18. Damage Requiring Service :** Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions :

- a. When the power-supply cord or plug is damaged.
- b. If any liquid has been spilled into, or objects have fallen in the unit.
- c. If the unit has been exposed to rain or water.
- d. If the unit does not operate normally by following the operating instruction, adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.

WARNING :

Lithium battery - Danger of explosion if incorrectly replaced. Must only be replaced by a battery of same make and type. Used batteries shall be returned to the supplier.

- e. If the unit has been dropped or the cabinet has been damaged.
- f. When the unit exhibits a distinct change in performance, this indicates a need for service.

- 19. Replacement Parts :** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

- 20. Safety Check :** Upon completion of any service or repairs to this unit, the safety check procedure should be performed.

IMPORTANT SAFETY NOTICE

There are special components in this equipment which are important for safety. These parts are marked by Δ in the schematic diagram, exploded views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts owing to shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

2. SPECIFICATIONS

Design and specifications are subject to change without notice.

Specifications			
Operation	Description	Operation	Description
Format	VHS PAL/MESECAM Standard	Audio	
Heads	Video : 2 Rotary heads Audio/Control : 1 Stationary head Erase : 1 Full track erase head	Input Output Wow Flutter (WTD) Signal-to-noise ratio Frequency response	- 8 dBm, 47 Kilohm unbalanced - 4 ± 3 dBm, 1.5 Kilohm unbalanced 0.4% Max (SP) 43dB min (IHF A FILTER) 100Hz - 8KHz (SP)
Receiving Channel	VHF LOW : E2-E4, X,Y, Z, Z+1, Z+2, S1-S10 VHF HIGH : E5-E12, S11-S41 UHF : 21-69	Power requirement	230V (AC 50/60 Hz)
RF Out	CCIR : UHF Channel 36 Preset (UHF Channel 30-39 Adjustable)	Power consumption	Approx. 18 watts
Television System	Standard B/G	Operation temperature	41° F - 104° F (5° C - 40° C)
Color System	PAL/MESECAM	Operation humidity	10% - 75%
Luminance	FM Azimuth Recording	Weight and dimensions	4.4Kg 398(W) X 90.5(H) X 310(D) mm
Color	Down-converted subcarrier phase shifted direct recording		
Tape Speed	SP : 23.39 mm/sec		
Recording/Playback Time	SP : 3 Hours (E-180 Tape)		
FF/REW Time	About 130 sec in REW; 180 sec in FF with E-180		
Video			
Input Output Signal-to-noise ratio Horizontal resolution	0.5 to 2.0Vp-p; 75 ohm unbalanced 1.0 ± 0.2Vp-p; 75 ohm unbalanced Better than 43dB (SP) More than 240 lines (SP)		

* Comparing Chart

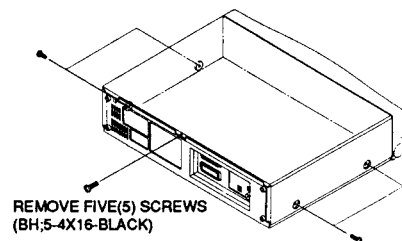
FEATURES MODELS	BUYER	AV IN/OUT JACK		AUDIO	SHOW	SHUTTLE	V.P.S	P.D.C
		FRONT AV	REAR	DUBBING	VIEW	(SET)		
SV-30XK	SEG	X	1 SCART	X	X	X	O	X
	SECO	X	1 SCART	X	X	X	X	X
	NSI	X	1 SCART	X	X	X	X	X
	SEP	X	1 SCART	X	X	X	X	X
	AMF	X	1 SCART	X	X	X	X	X
	SEI	X	1 SCART	X	X	X	X	X
SV-31XK	SEG	X	1 SCART	X	O	X	O	X
	SEC	X	1 SCART	X	O	X	X	X
SV-40XK	SEG	O	2 SCART	O	O	O	O	X
	SECO	O	2 SCART	O	O	O	X	X
	NSI	O	2 SCART	O	O	O	X	X
	SEP	O	2 SCART	O	O	O	X	X
	AMF	O	2 SCART	O	O	O	X	O
	SEI	O	2 SCART	O	O	O	X	X

3. DISASSEMBLY

3-1. Instrument & PCB Disassembly

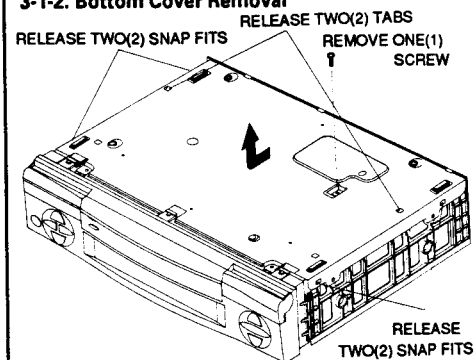
Please dismantle in the order shown.
Reassemble in reverse order.

3-1-1. Top Cabinet Removal



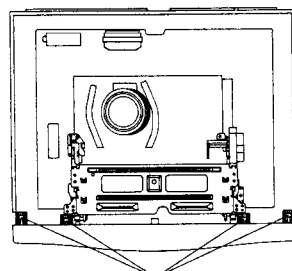
- Remove five(5) screws from the top cabinet.
- Carefully lift the back of the top cabinet and slide it to the rear to remove.

3-1-2. Bottom Cover Removal

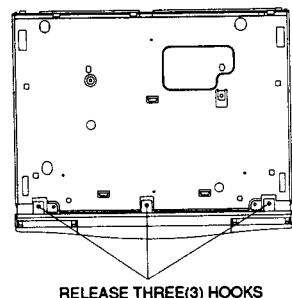


- Remove one(1) screw and lift up the bottom cover in the direction of arrow.

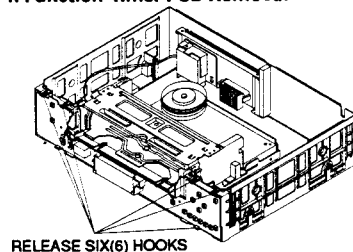
3-1-3. Front Panel Removal



- First remove the knob -shuttle and release four(4) hooks.



3-1-4. Function-Timer PCB Removal

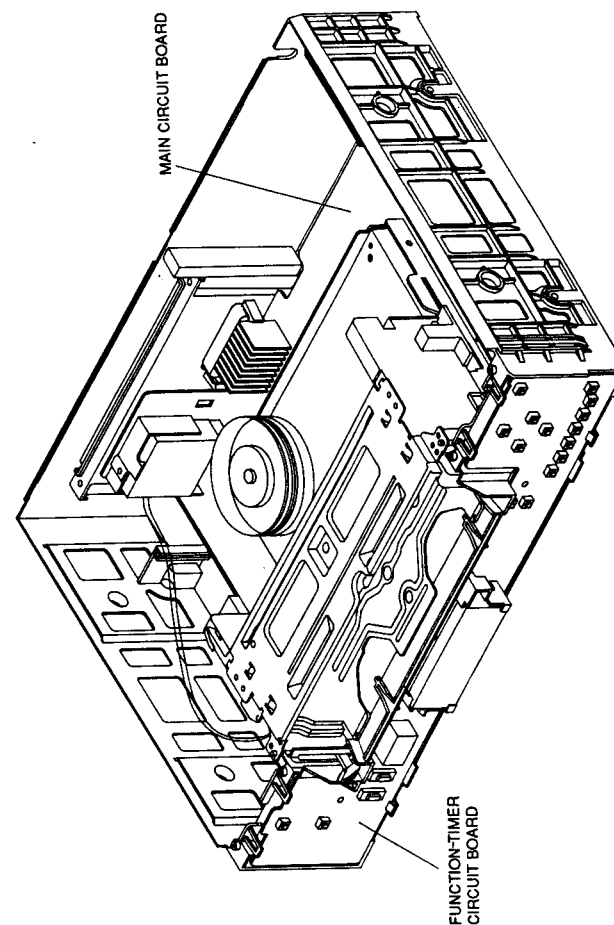


- Release six(6) hooks and then pull the Function-Timer PCB in the direction of arrow.

NOTE: Take extreme care not to damage the PCB when removing it.

3-1

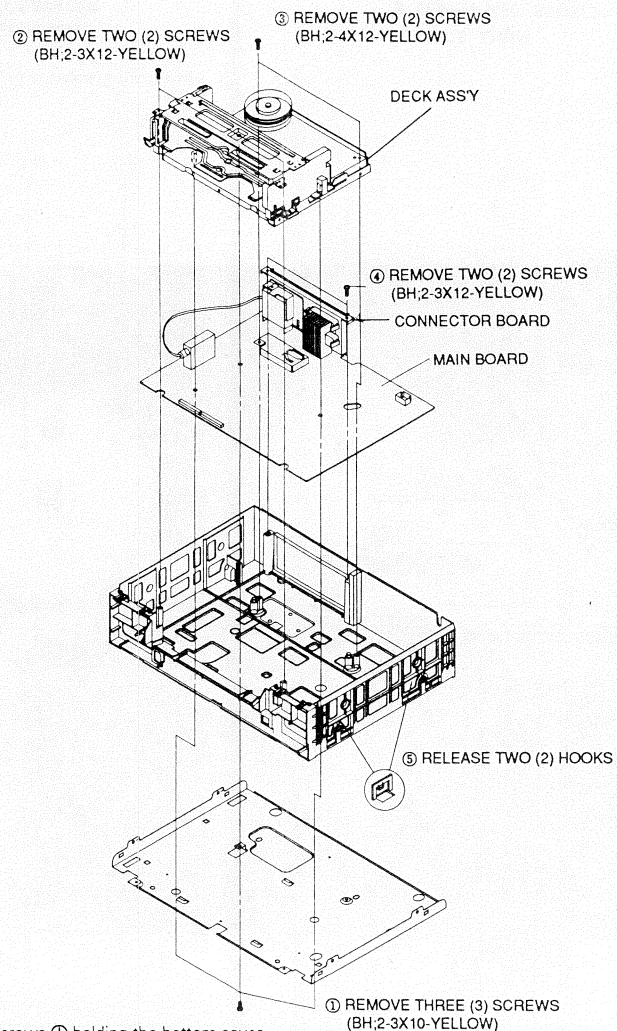
3-2. Circuit Boards Location



3-2

NOTE : 1. When removing chassis, take extreme care not to damage the main PCB front.
2. When reinstalling the deck on the main PCB, take extreme care not to damage the sensor.

3-3. Chassis Unit Removal



1. Remove three(3) screws ① holding the bottom cover.
2. Remove two(2) screws ② holding the housing & frame.

3. Remove two(2) screws ③ holding the deck & frame.

4. Lift up the deck ass'y.

5. Remove two(2) screws ④ holding the connector board and lift up the main PCB by releasing two(2) hooks ⑤.

3-4. Deck Parts Locations

3-4-1. Deck (Top View)

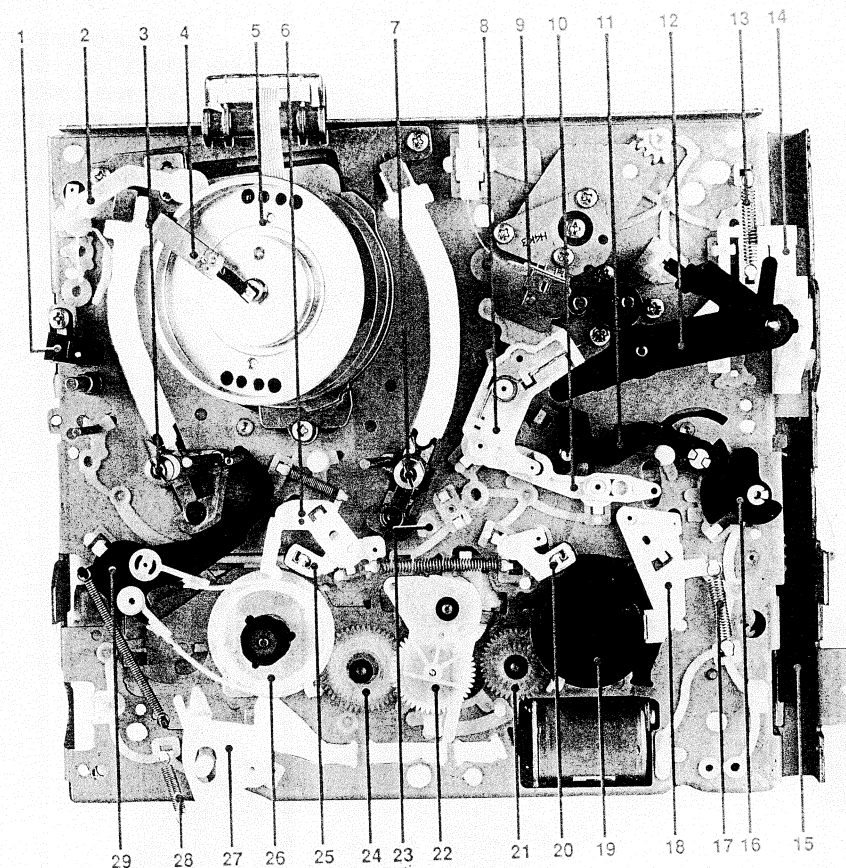


Fig.1 Deck Parts Locations (Top View)

- | | | |
|--------------------------------------|-----------------------------|----------------------------|
| 1. FULL ERASE HEAD | 10. LEVER PINCH CAM | 20. BRAKE MAIN "R" ASS'Y |
| 2. HEAD CLEANER ASS'Y (DX-5-RC ONLY) | 11. ARM REVIEW ASS'Y | 21. GEAR RELAY "T" ASS'Y |
| 3. SLIDE GEAR LOADING ASS'Y "T" | 12. UNIT PINCH ROLLER ASS'Y | 22. IDLER ASS'Y |
| 4. HEAD BRUSH ASS'Y | 13. SPRING SLIDE PUSH | 23. PRISM LED |
| 5. CYLINDER ASS'Y | 14. SLIDE PINCH | 24. GEAR RELAY "S" ASS'Y |
| 6. BRAKE SUB "L" | 15. SLIDE RACK HOUSING | 25. BRAKE MAIN "L" ASS'Y |
| 7. SLIDE GEAR LOADING ASS'Y "S" | 16. LEVER REVIEW | 26. REEL DISK "L" ASS'Y |
| 8. LEVER PINCH COMP | 17. SPRING BRAKE SUB "R" | 27. LEVER REC SWITCH |
| 9. FULL ACE HEAD ASS'Y | 18. BRAKE SUB "R" ASS'Y | 28. SPRING REC SWITCH |
| | 19. REEL DISK "R" ASS'Y | 29. ARM TENSION FULL ASS'Y |

3-4-2. Deck (Bottom View)

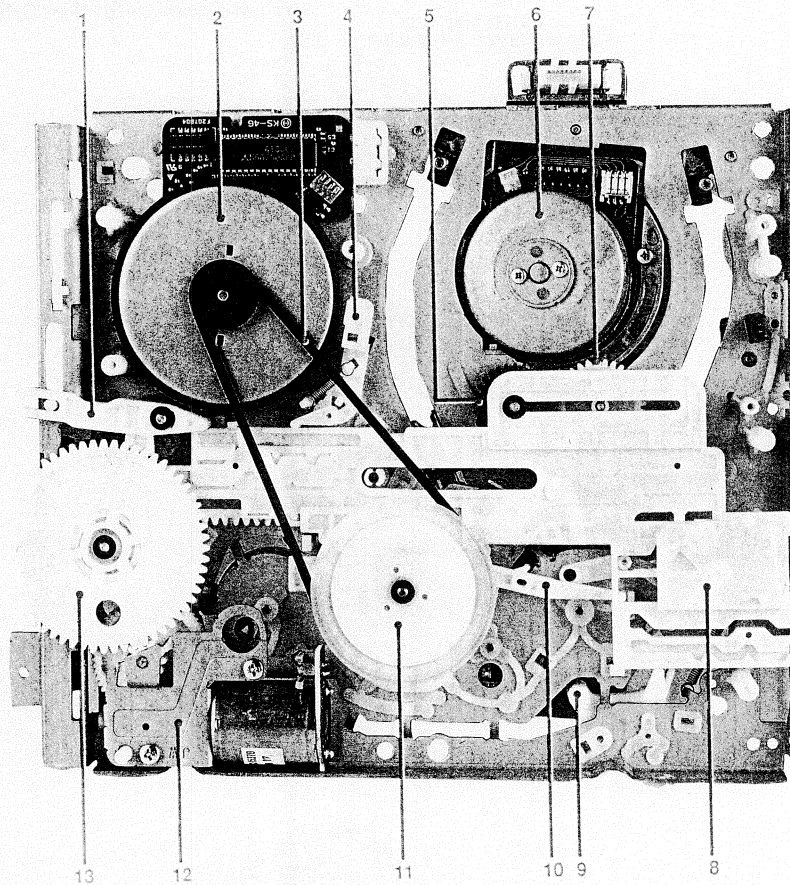


Fig. 2 Deck Parts Locations (Bottom View)

- | | |
|---------------------------|------------------------|
| 1. LEVER SLIDE PINCH | 8. SLIDE MAIN |
| 2. MOTOR D.D. CAPSTAN | 9. LEVER REC SWITCH |
| 3. BELT CAPSTAN | 10. LEVER IDLER CHANGE |
| 4. BRAKE CAPSTAN ASS'Y | 11. CLUTCH ASS'Y |
| 5. GEAR LOADING "R" ASS'Y | 12. UNIT LOADING |
| 6. MOTOR CYLINDER | 13. GEAR MASTER |
| 7. GEAR LOADING "L" ASS'Y | |

3-5. Housing Assembly

3-5-1. Housing

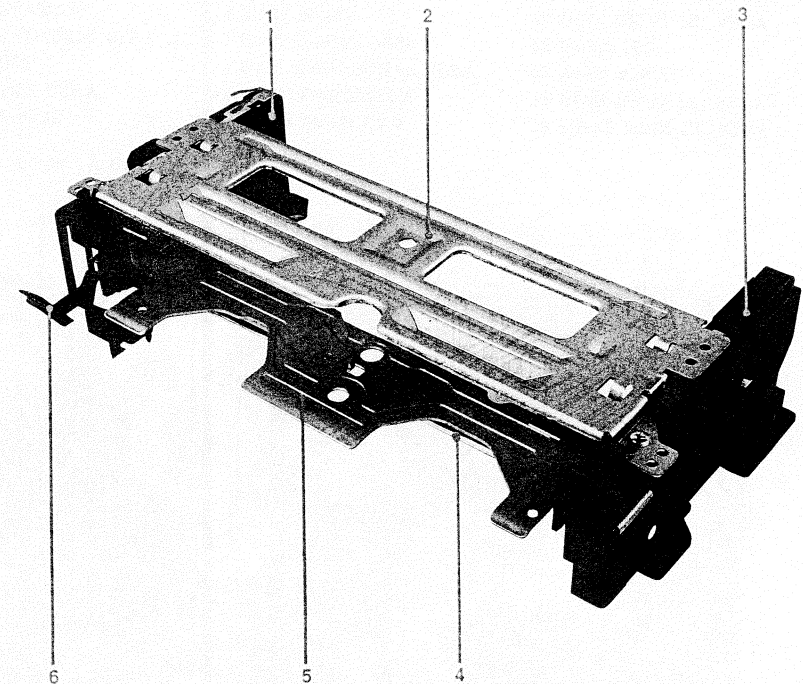


Fig. 3 Housing Parts Locations

- | |
|---------------------------|
| 1. CHASSIS SIDE "L" ASS'Y |
| 2. UPPER CHASSIS |
| 3. CHASSIS SIDE "R" ASS'Y |
| 4. SHAFT ARM ASS'Y |
| 5. HOLDER CASSETTE ASS'Y |
| 6. LEVER DOOR ASS'Y |

3-5-2. Removal from Main Base

- 1) Remove three(3) screws ①.
- 2) Lift the housing ass'y in the direction of arrow "B" while pushing the tab ② in the direction of arrow "A".
(Refer to detail drawing)

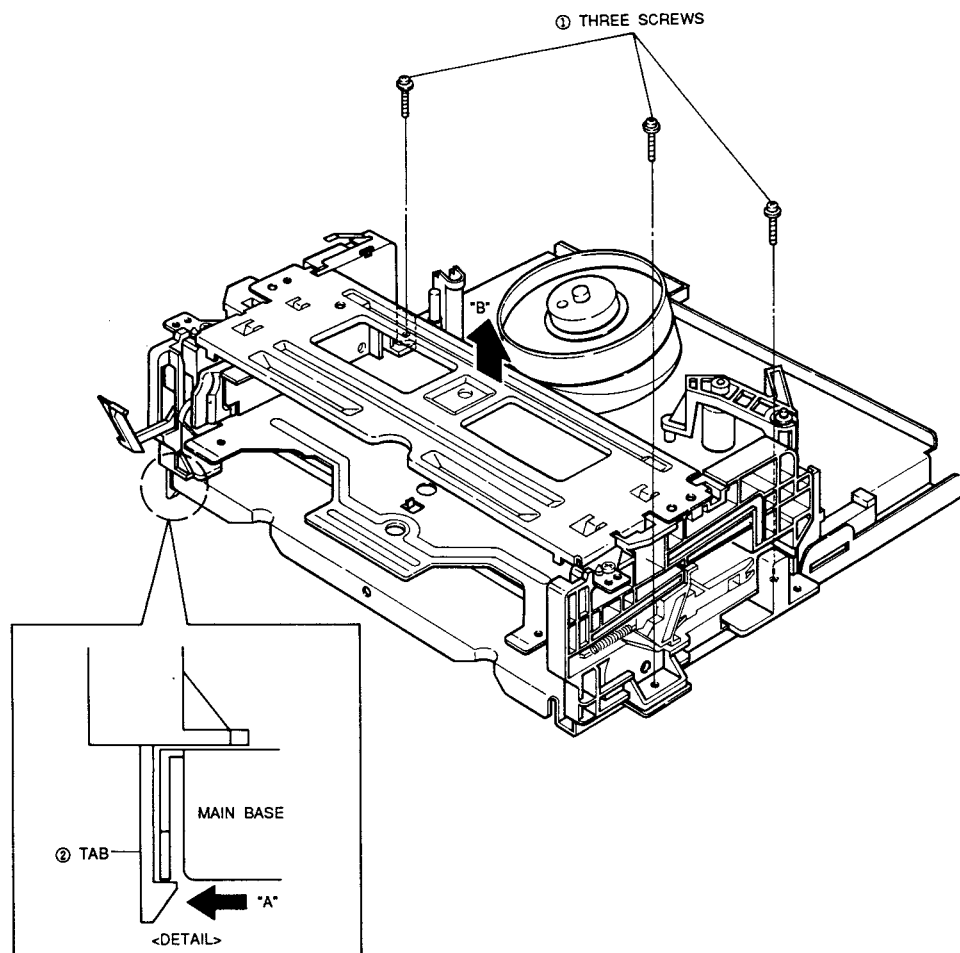


Fig. 4 Housing Ass'y Removal from Main Base

3-5-3. Disassembly

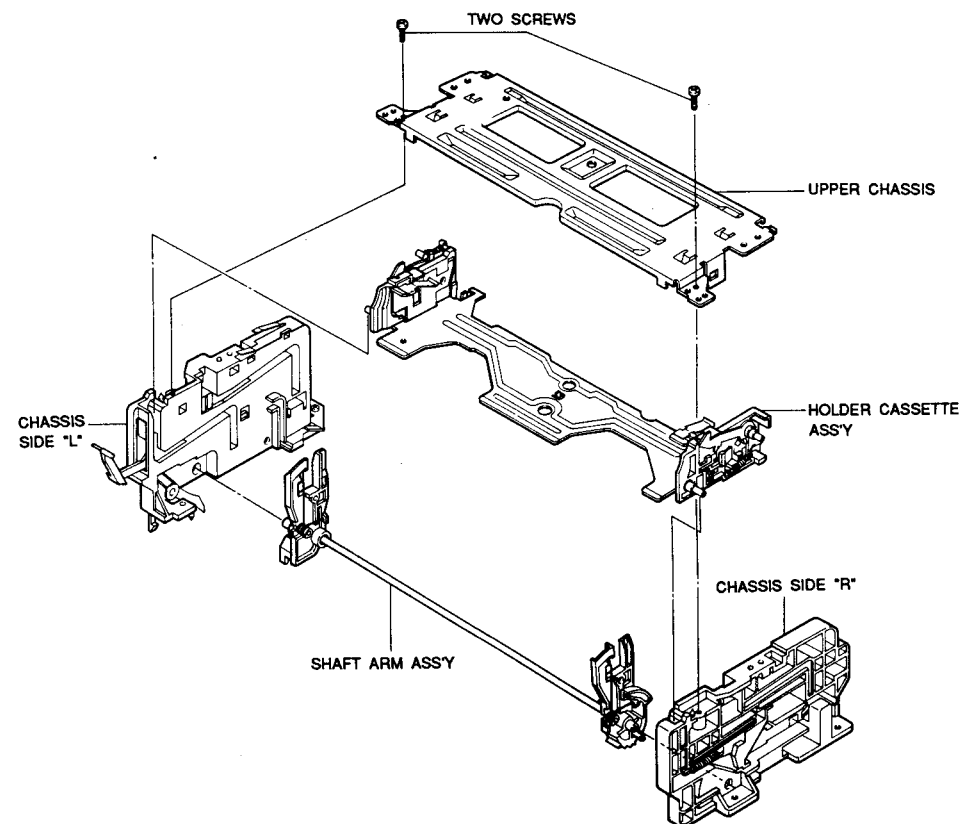


Fig. 5 Housing Ass'y Removal

3-5-4. Upper Chassis Removal

- 1) Remove two(2) screws ①.
- 2) Lift the upper chassis ④ in the direction of arrow "C" while pushing the two(2) tabs ②, ③ in the direction of arrows "A", "B". (Refer to detail drawings "A", "B")

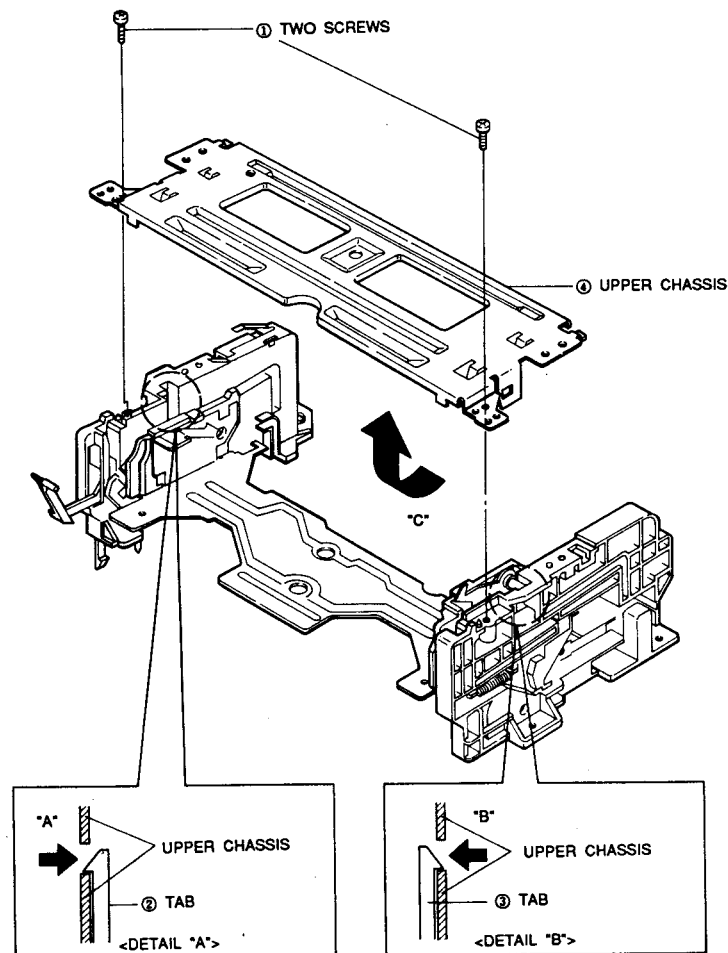


Fig. 6 Upper Chassis Removal

3-5-5. Holder Cassette Ass'y & Chassis Side L/R Removal

- 1) Lift the holder cassette ① in the direction of arrow "A" (Refer to Fig. A).
- 2) Remove the chassis side "L" ② & "R" ③ from shaft arm ass'y ④ in the direction of arrows "B", "C" (Refer to Fig. B).

NOTE : If you operate the deck when the holder cassette ass'y is removed, the shaft arm "R" and the slide damper are not returned to their original position. If this happens by accident, push the slide damper of chassis side "R" in the direction of arrow "D", and return the slide damper in the reverse direction of arrow "D" when the shaft arm ass'y is in eject mode.

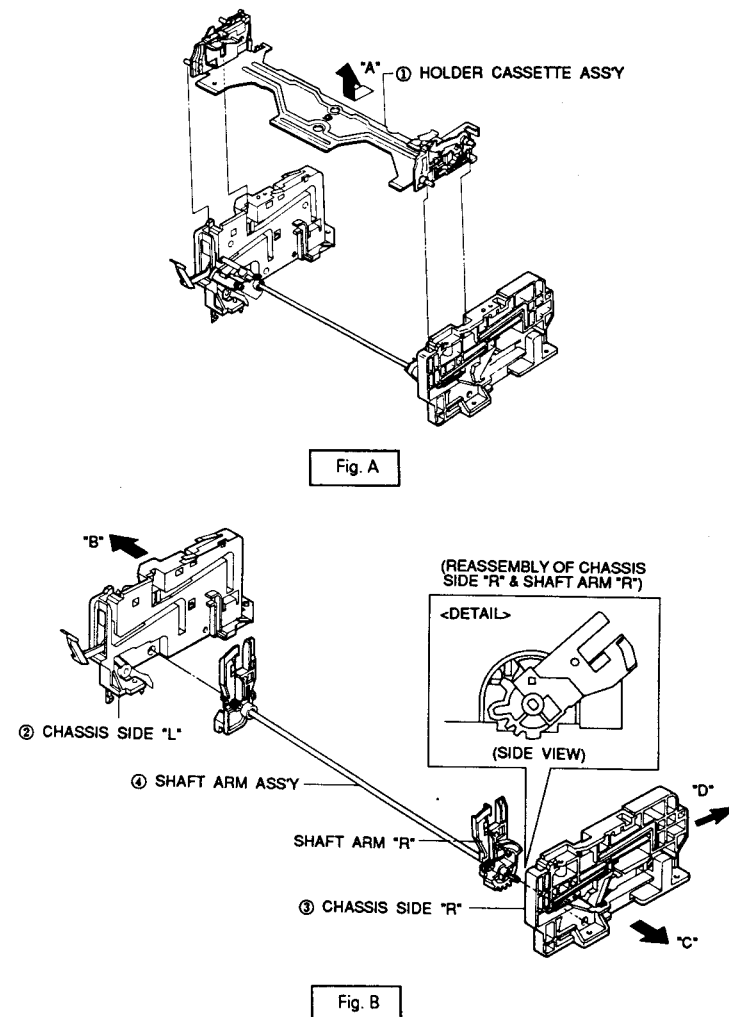


Fig. 7 Holder Cassette Ass'y & Chassis Side L/R Removal

3-5-6. Chassis Side "R" Parts Locations

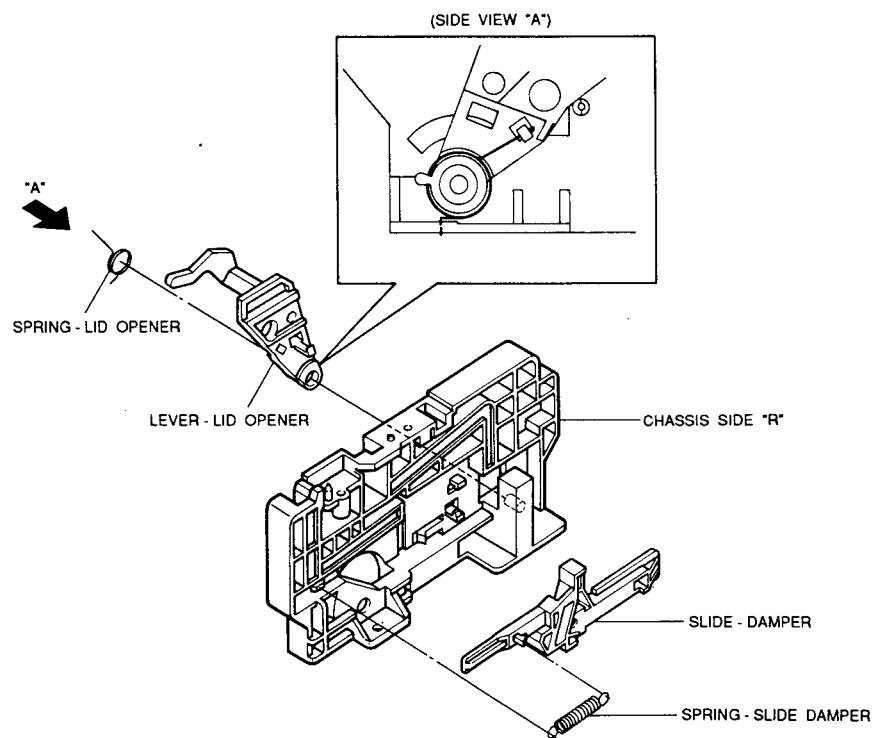


Fig. 8 Chassis Side "R" Parts Locations

3-5-7. Slide Damper Removal

- 1) Remove the spring slide damper ①.
- 2) Push the stopper ③ of the chassis side "R" ④. Move the slide damper ② in the direction of arrow.
- 3) Align the slide damper ② with the chassis side tab (as shown detail drawing).
- 4) Lift the slide damper ② to remove.

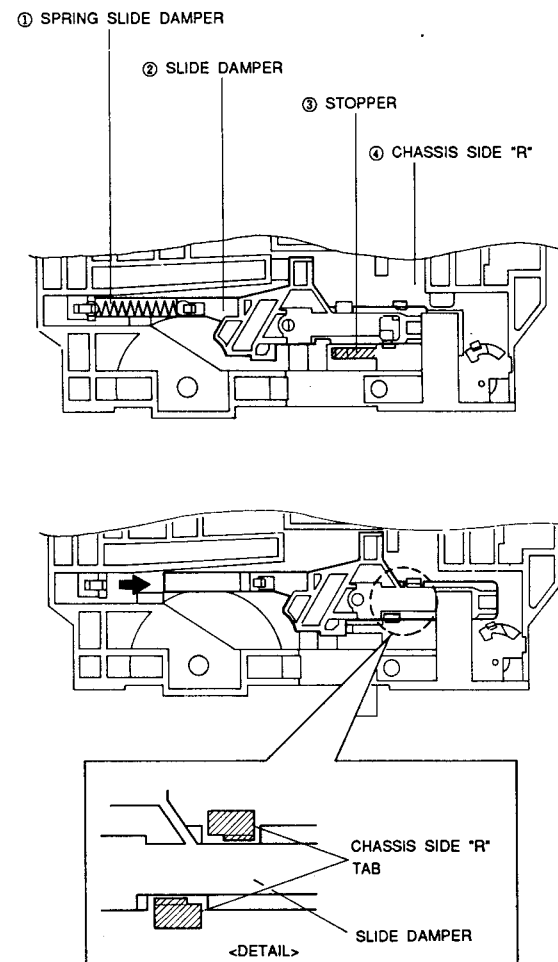


Fig. 9 Slide Damper Removal

3-6. Cylinder Ass'y

3-6-1. Exploded View of Cylinder Ass'y

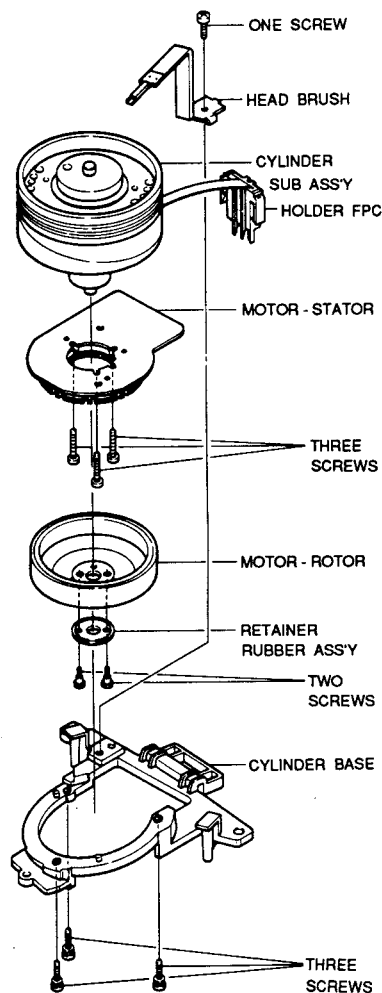


Fig. 10 Exploded View of Cylinder Ass'y

3-6-2. Stopper Tape & Ass'y Head Cleaner Removal

【1】 Stopper Tape Removal

(Only for deck : DX5-R, Refer to Fig. A)

- 1) Release one(1) tab ① in the direction of arrow 'A'. (Refer to detail drawing)
- 2) Lift the stopper tape ② in the direction of arrow 'B'.

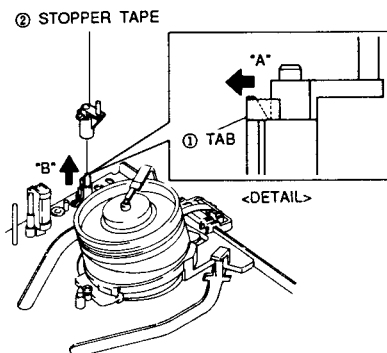


Fig. A

【2】 Ass'y Head Cleaner Removal

(Only for deck : DX5-RC, Refer to Fig. B)

- 1) Release one(1) tab ① in the direction of arrow 'A'.
- 2) Lift the ass'y head cleaner ② in the direction of arrow 'B'.

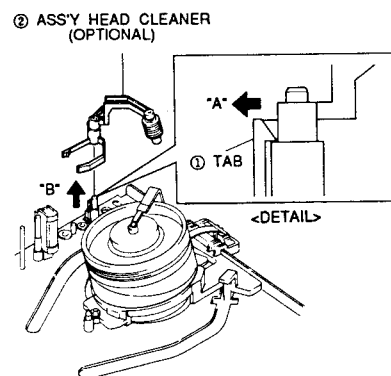


Fig. B

Fig. 11 Stopper Tape & Ass'y Head Cleaner Removal

3-6-3. Cylinder Ass'y Removal from Main Base

- 1) Remove three(3) screws ① holding the main base and the cylinder ass'y.
- 2) Lift the cylinder ass'y ② in the direction of arrow.

NOTE : Do not touch the video heads during removal or installation.

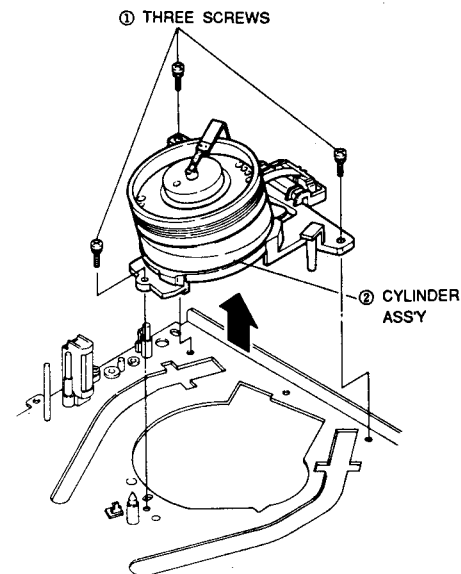


Fig. 12 Cylinder Ass'y Removal from Main Base

3-6-4. Head Brush & Holder FPC Removal

- 1) Remove one(1) screw ① and then lift the head brush ②.
- 2) Release the holder FPC tab holding the cylinder base ④ in the direction of arrow. (Refer to detail drawing)
- 3) Disconnect the holder FPC ③ from the cylinder base ④.

NOTE : When disconnecting the holder FPC ③ from the cylinder base ④: Take care not to disconnect the FPC cable from the holder FPC (The FPC cable is very short.).

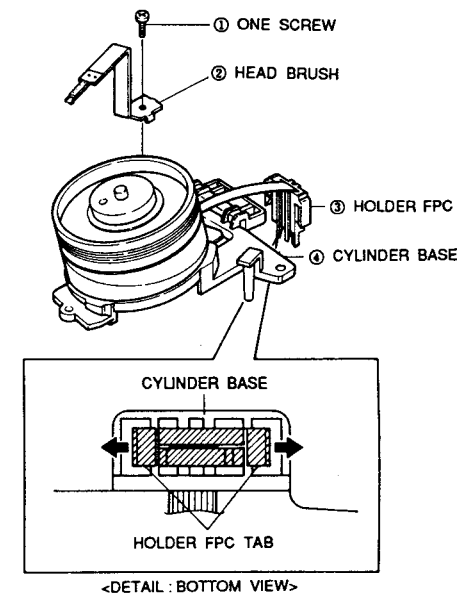


Fig. 13 Head Brush & Holder FPC Removal

3-6-5. Cylinder Ass'y Removal from Cylinder Base

- 1) Remove three(3) screws ① from the cylinder base ②.
- 2) Lift the cylinder ass'y ③ from the cylinder base ② in the direction of arrow.

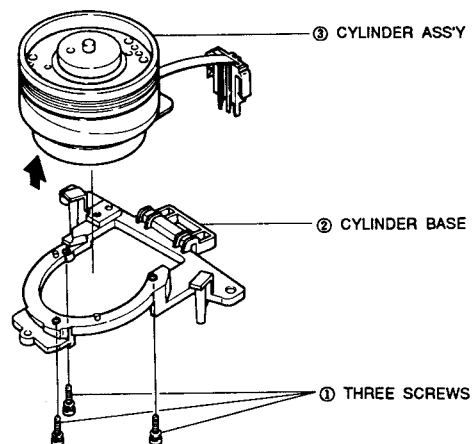


Fig. 14 Cylinder Ass'y Removal from Cylinder Base

3-6-6. Motor Rotor Removal

- 1) Remove two(2) screws ①.
- 2) Lift the retainer lever ass'y ② and the motor rotor ③.

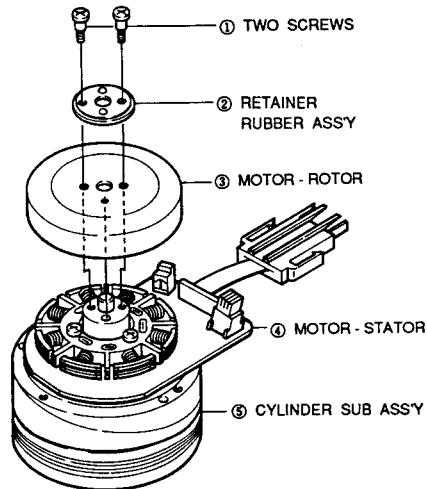


Fig. 15 Motor Rotor Removal

3-6-7. Motor Rotor & Cylinder Sub Ass'y

- 1) Make sure that phase matching holes of the motor rotor & the cylinder sub ass'y are aligned correctly as shown in Fig. 16. (Refer to phase matching hole)
- 2) Reinstall the retainer lever ass'y ② and secure with two(2) screws.

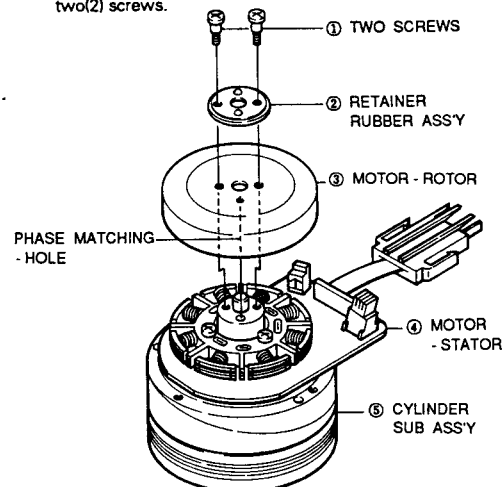


Fig. 16 Assembly of Motor Rotor & Cylinder Sub Ass'y

3-6-8. Motor Stator Removal

- 1) Remove three(3) screws ①.
- 2) Remove the motor stator ② from the cylinder sub ass'y ③.

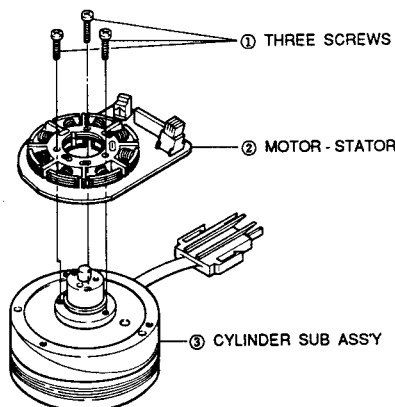


Fig. 17 Motor Stator Removal

3-6-9. Motor Stator & Cylinder Sub Ass'y

- 1) Reinstall the motor stator ① toward the FPC cable of cylinder sub ass'y ②.
- 2) Secure with three(3) screws. (Refer to Fig. 17)

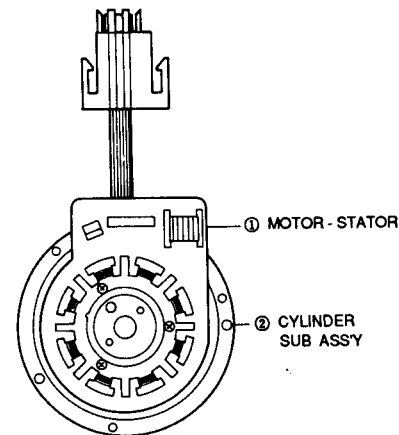


Fig. 18 Assembly of Motor Stator & Cylinder Sub Ass'y

3-7. Main Deck Removal & Reassembly

3-7-1. Slide Rack Housing Removal

- 1) Lift the slide rack housing in the direction of arrow.

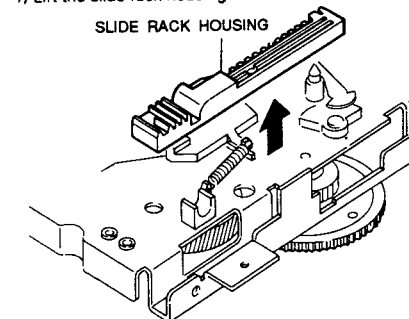


Fig. 19 Slide Rack Housing Removal

3-7-2. Assembly of Slide Rack Housing & Gear Master

- 1) Confirm that the hole of gear master ① and the hole "A" of main base are aligned correctly. (Eject mode)
- 2) Align the slot #1 of gear master ① with the tooth #1 of slide rack housing. (Refer to timing point)

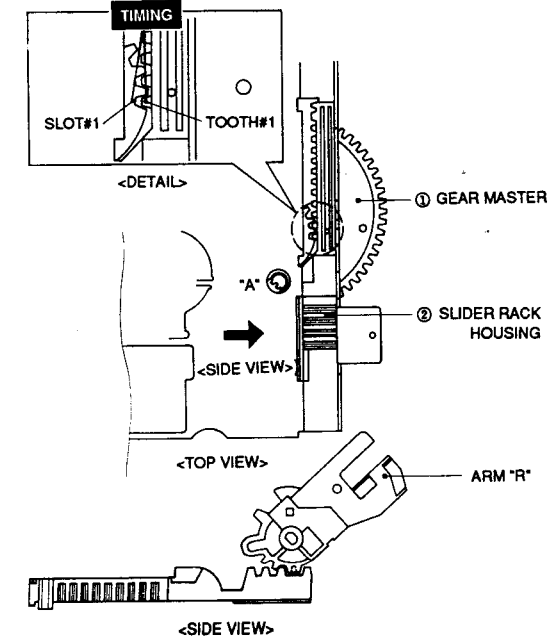


Fig. 20 Assembly of Slide Rack Housing & Gear Master

3-7-3. Brake Sub "L" Removal

- 1) Remove the spring brake sub "L" ①.
- 2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
- 3) Lift the brake sub "L" ③.

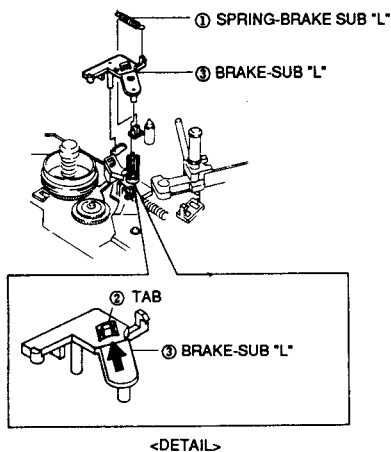


Fig. 21 Brake Sub "L" Removal

3-7-4. Arm Tension Full Ass'y Removal

- 1) Remove the spring tension ①.
- 2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
- 3) Lift the arm tension full ass'y ③.

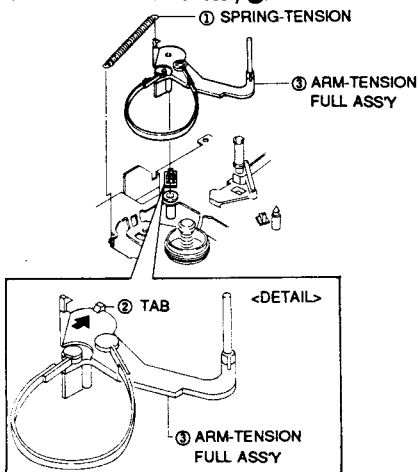


Fig. 22 Arm Tension Full Ass'y Removal

3-7-5. Reel Disk "L" Ass'y & Gear Relay "S" Ass'y Removal

- 1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
- 2) Lift the reel disk "L" ass'y ②.
- 3) Remove the washer plain ③.
- 4) Remove the washer slit ④.
- 5) Lift the gear relay "S" ass'y ⑤.

NOTE : When reinstalling, be sure to install the reel disk "L" ass'y ② after installing the washer plain ③.

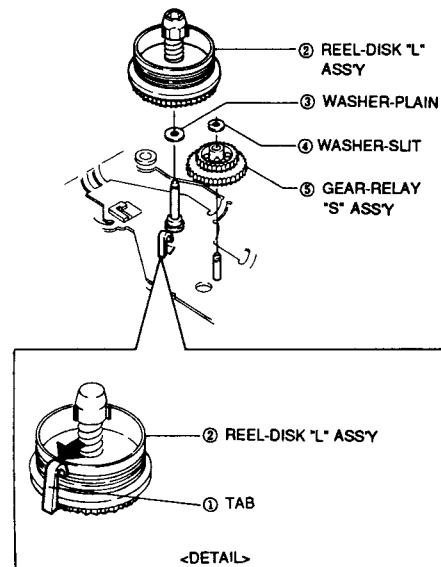


Fig. 23 Reel Disk "L" Ass'y & Gear Relay "S" Ass'y Removal

3-7-6. Brake Sub "R" Ass'y Removal

- 1) Remove the spring brake sub "R" ①.
- 2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
- 3) Lift the brake sub "R" ass'y ③.

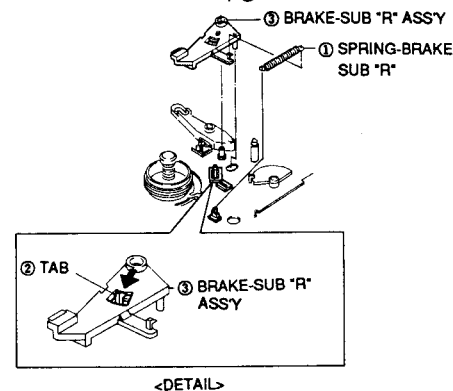


Fig. 24 Brake Sub "R" Ass'y Removal

3-7-7. Reel Disk "R" Ass'y & Gear Relay "T" Ass'y Removal

- 1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
- 2) Lift the reel disk "R" ass'y ②.
- 3) Remove the washer plain ③.
- 4) Remove the washer slit ④.
- 5) Lift the gear relay "T" ass'y ⑤.

NOTE : When reinstalling, be sure to install the reel disk "R" ass'y ② after installing the washer plain ③.

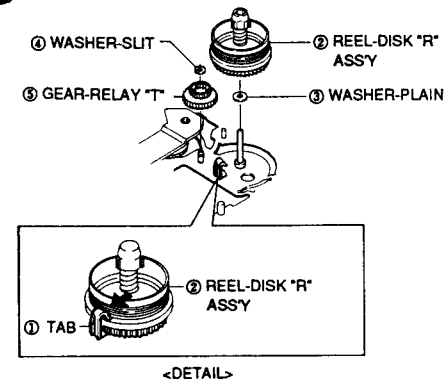


Fig. 25 Reel Disk "R" Ass'y & Gear Relay "T" Ass'y Removal

3-7-8. Brake Main "L", "R" Ass'y Removal

- 1) Remove the spring brake main ①.
- 2) Release the tab ② in the direction of arrow "A".
(Refer to detail drawing "A")
- 3) Lift the brake main "L" ③.
- 4) Release the tab ④ in the direction of arrow "B".
(Refer to detail drawing "B")
- 5) Lift the brake main "R" ⑤.

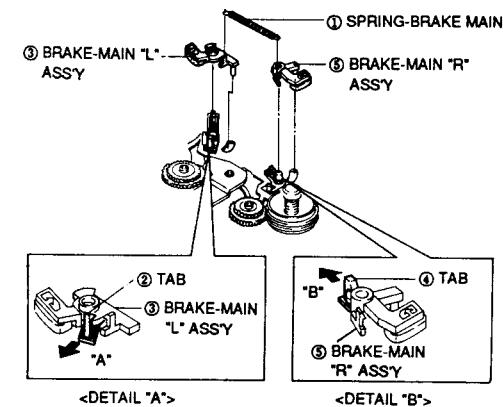


Fig. 26 Brake Main "L", "R" Ass'y Removal

3-7-9. Idler Ass'y Removal

- 1) Remove the washer slit ①.
- 2) Lift the idler ass'y ②.

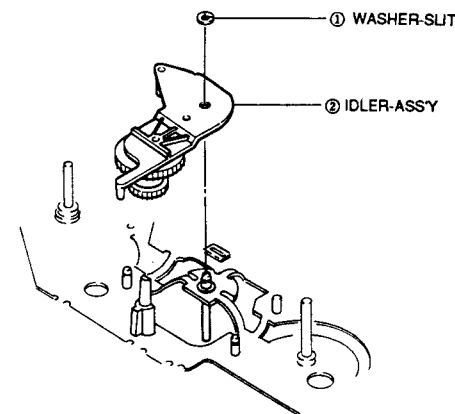


Fig. 27 Idler Ass'y Removal

3-7-10. Unit Pinch Roller Ass'y Removal

- 1) Remove the washer slit ①.
- 2) Lift the unit pinch roller ②.
- 3) Lift the spring arm pinch ③.

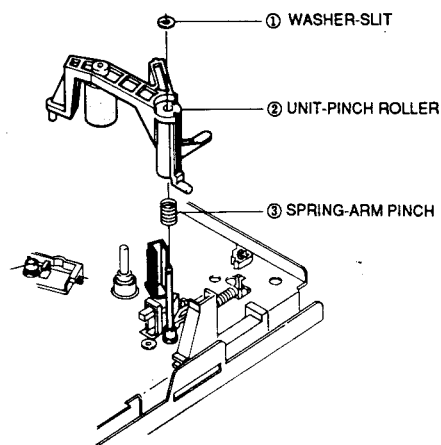


Fig. 28 Unit Pinch Roller Ass'y Removal

3-7-11. Assembly of Unit Pinch Roller

- 1) Install the unit pinch roller as shown in Fig. 29. (Refer to A, B)

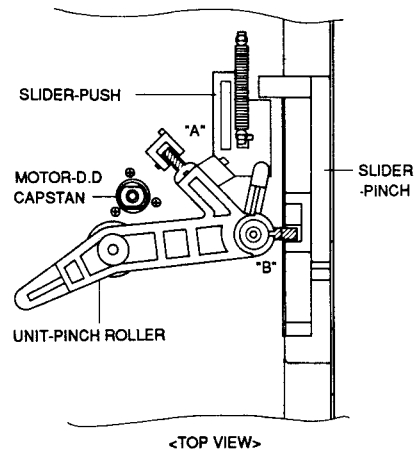


Fig. 29 Assembly of Unit Pinch Roller

3-7-12. Exploded View of Lever Pinch Comp Ass'y, Lever Pinch Cam, Arm Review Ass'y & Lever Review Ass'y

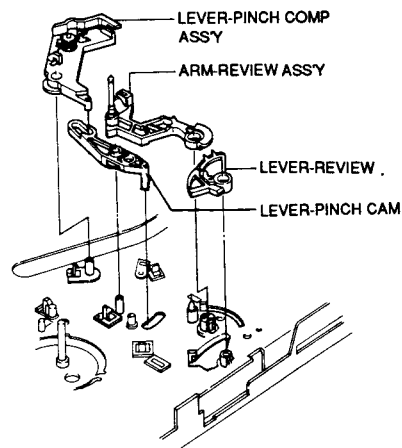


Fig. 30 Exploded View of Lever Pinch Comp Ass'y, Lever Pinch Cam, Arm Review Ass'y & Lever Review Ass'y

3-7-13. Lever Pinch Comp Ass'y Removal

- 1) Release the tab ① in the direction of arrow. (Refer to detail drawing)
- 2) Lift the lever pinch comp ass'y ②.

NOTE : Don't touch the lever pinch comp ass'y ① to audio head base during removal.

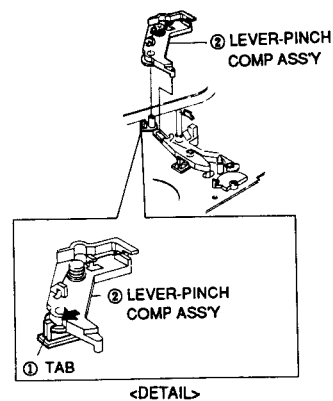


Fig. 31 Lever Pinch Comp Ass'y Removal

3-7-14. Lever Pinch Cam Removal

- 1) Release the tab ① in the direction of arrow. (Refer to detail drawing)
- 2) Lift the lever pinch cam ②.

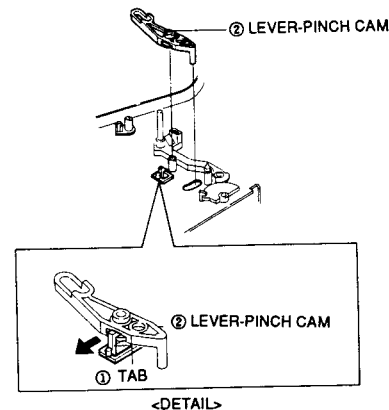


Fig. 32 Lever Pinch Cam Removal

3-7-15. Arm Review Ass'y Removal

- 1) Push the stopper tab ① in the direction of arrow.
- 2) Pull the arm review ass'y ② in the direction of arrow 'A' and then confirm 'B'. (Refer to detail drawing 'A')
- 3) Release the tab ③ in the direction of arrow and then lift the arm review ass'y ②.

NOTE : Take extreme care not to damage when removing the arm review ass'y ②. (B part of detail drawing A)

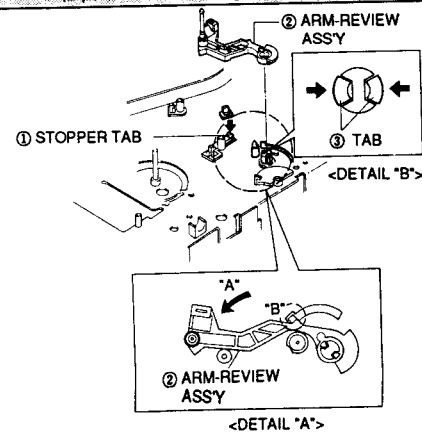


Fig. 33 Arm Review Ass'y Removal

3-7-16. Lever Review Removal

- 1) Release the tab ① in the direction of arrow. (Refer to detail drawing)
- 2) Lift the lever review ②.

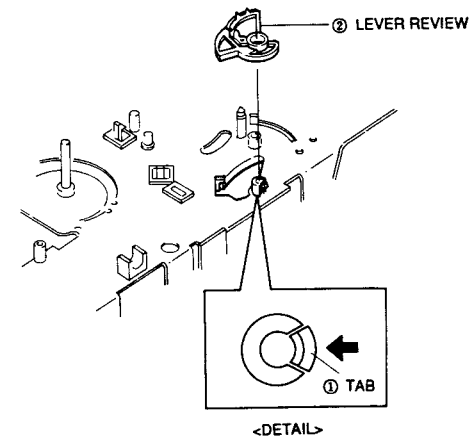


Fig. 34 Lever Review Removal

3-7-17. Belt Capstan Removal

- 1) Remove the belt capstan ①.

NOTE : Take extreme care not to touch the grease when removing or reinstalling.

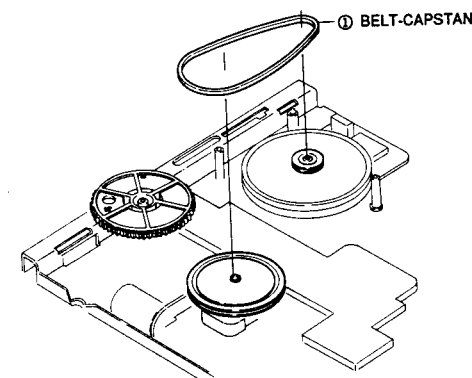


Fig. 35 Belt Capstan Removal

3-7-18. Brake Capstan Ass'y Removal

- 1) Remove the spring brake capstan ①.
- 2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
- 3) Lift the brake capstan ass'y ③.

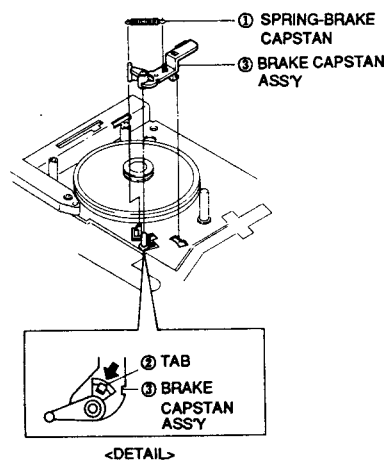


Fig. 36 Brake Capstan Ass'y Removal

3-7-19. Motor D.D Capstan Removal

- 1) Remove three(3) screws ①. (Top view)
- 2) Lift the motor D.D capstan ② in the direction of arrow.
(Bottom view)

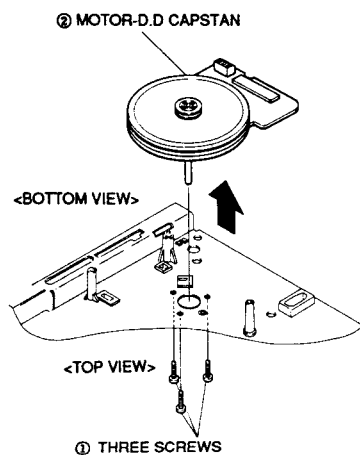


Fig. 37 Motor D.D Capstan Removal

3-7-20. Clutch Ass'y Removal

- 1) Remove the washer slit ①.
- 2) Lift the clutch ass'y ②.
- 3) Remove the washer plain ③.

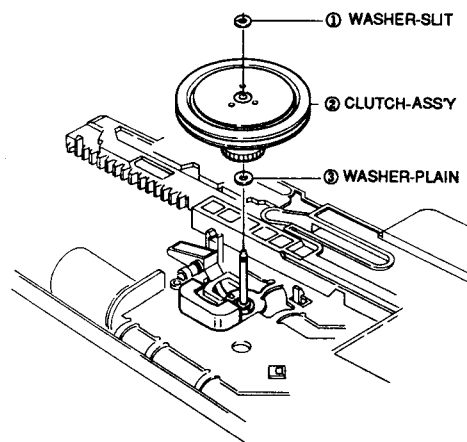


Fig.38 Clutch Ass'y Removal

3-7-21. Gear Master Removal

- 1) Remove the washer slit ①.
- 2) Lift the gear master ②.

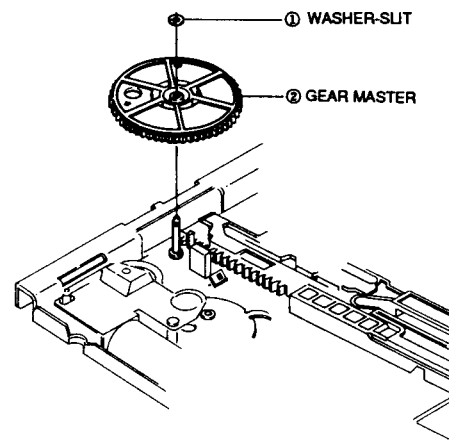


Fig. 39 Gear Master Removal

3-7-22. Assembly of Gear Master

- 1) When reinstalling, be sure to align the arrow mark of gear master ① with gear home of gear worm wheel ②.
(Refer to timing point)

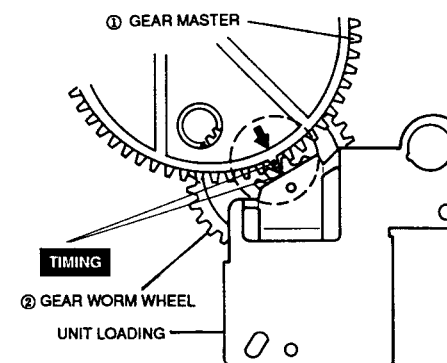


Fig. 40 Assembly of Gear Master

3-7-23. Unit Loading Removal

- 1) Remove two(2) screws ①.
- 2) Lift the unit loading ② in the direction of arrow.

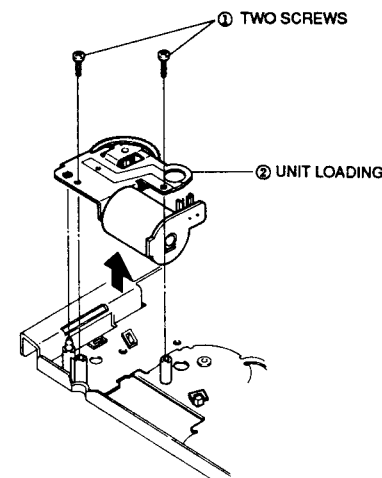


Fig. 41 Unit Loading Removal

3-7-24. Lever Slide Pinch Removal

- 1) Remove the washer slit ①.
- 2) Lift the lever slide pinch ②.

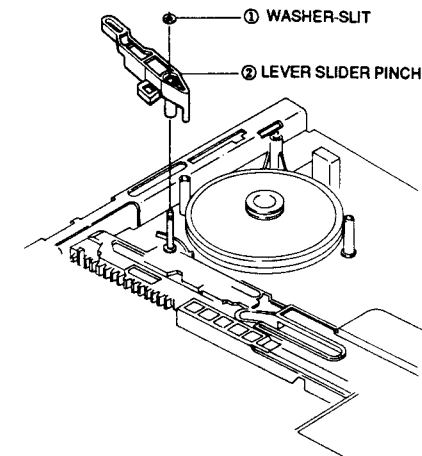


Fig. 42 Lever Slide Pinch Removal

3-7-25. Assembly of Lever Slide Pinch

- 1) Pull the slide pinch ① to the end in the direction of arrow.
- 2) Insert the slide pinch ① into the hole of lever slide pinch ②. (Refer to 'A' part)

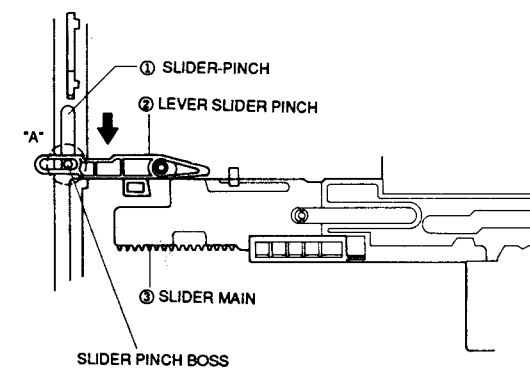


Fig. 43 Assembly of Lever Slide Pinch

3-7-26. Slide Main Removal

- 1) Remove the washer slit ①.
- 2) Release three(3) tabs ②, ③, ④ in the direction of arrow.
- 3) Lift the slide main ⑤.

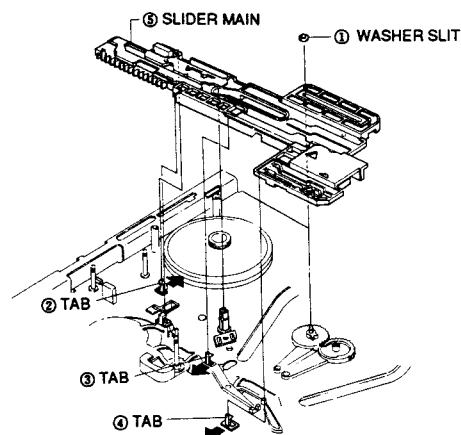


Fig. 44 Slide Main Removal

3-7-27. Assembly of Slide Main

- 1) Install the shaft of gear loading "R" ass'y into the left of the main slide hole and secure with the washer slit ②. (Refer to "A")
- 2) Insert the lever tension control ③ and the lever idler change ④ into the slide main hole. (Refer to "B")
- 3) After confirming the above items 1), 2) install the slide main and secure with tabs (a, b, c).

NOTE : Be sure to assemble the slide main when the gear loading L/R ass'y is in unloading position.

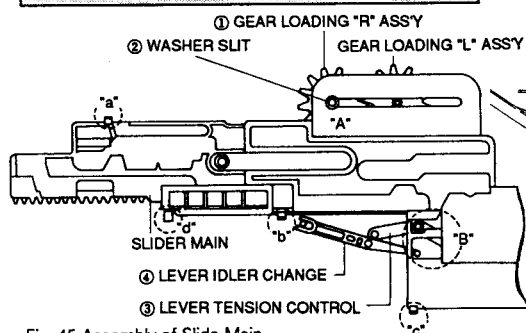


Fig. 45 Assembly of Slide Main

3-7-28. Lever Shift Ass'y Removal

- 1) Hang the spring lever shift ① to the claw of the lever shift ③. (Refer to detail drawings "A", "B")
- 2) Release the tab ② in the direction of arrow.
- 3) Lift the lever shift ③.

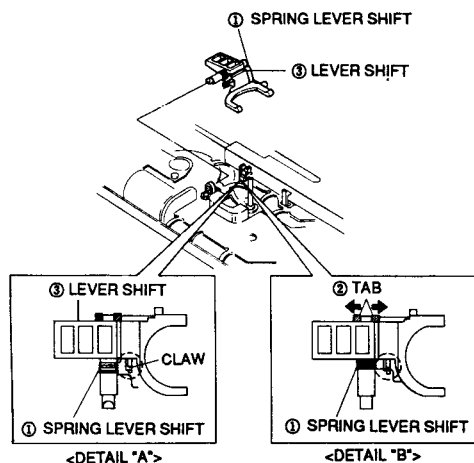


Fig. 46 Lever Shift Ass'y Removal

3-7-29. Lever Idler Change Removal

- 1) Release the tab ① in the direction of arrow. (Refer to detail drawing)
- 2) Lift the lever idler change ②.

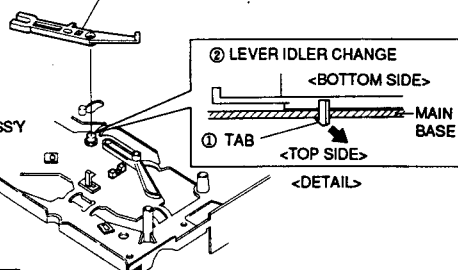
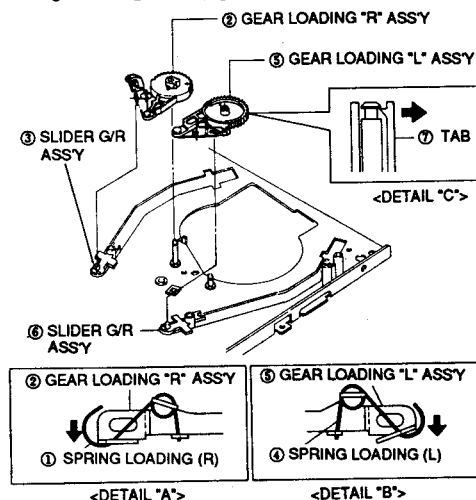


Fig. 47 Lever Idler Change Removal

3-7-30. Gear Loading "L", "R" Ass'y Removal

- 1) Remove the gear loading "R" ass'y ② from the slide guide roller "T" ③ by pushing the spring loading "R" ① in the direction of arrow. (Refer to detail drawing "A")
- 2) Remove the gear loading "L" ass'y ⑤ from the slide guide roller "S" ⑥ by pushing the spring loading "L" ④ in the direction of arrow. (Refer to detail drawing "B")
- 3) Lift the gear loading "R" ass'y ②.
- 4) Lift the gear loading "L" ass'y ⑤ by pushing the tab ⑦ of the gear loading "L" ass'y ⑤. (Refer to detail drawing "C")



3-7-31. Gear Loading "L", "R" Ass'y

- 1) When reinstalling, be sure to align two arrows as shown in Fig. 49. (Refer to timing point)

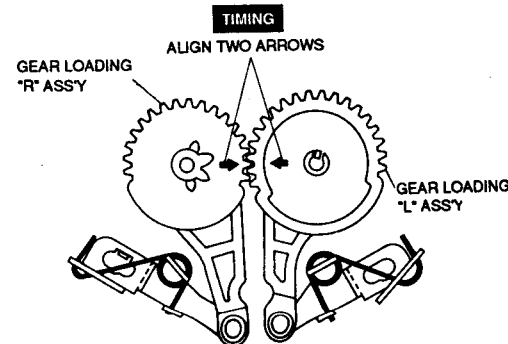


Fig. 49 Assembly of Gear Loading "L", "R" Ass'y

3-7-32. Slide Pinch Removal

- 1) Push the tab ① in the direction of arrow "A". (Refer to detail drawing)
- 2) Lift the slide pinch ② in the direction of arrow "B".

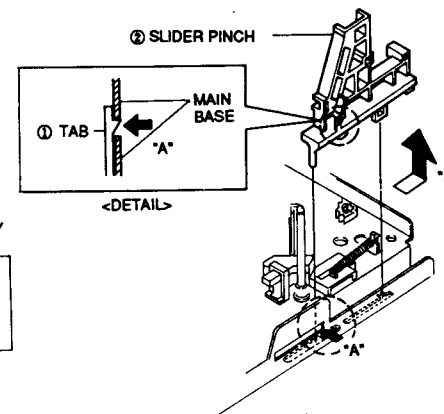


Fig. 50 Slide Pinch Removal

3-7-33. Slide Push Removal

- 1) Remove the spring slide push ①.
- 2) Push the slide push ② in the direction of arrow "A".
- 3) Lift the slide push ② by pushing the tab ③ in the direction of arrow "B". (Refer to detail drawing)

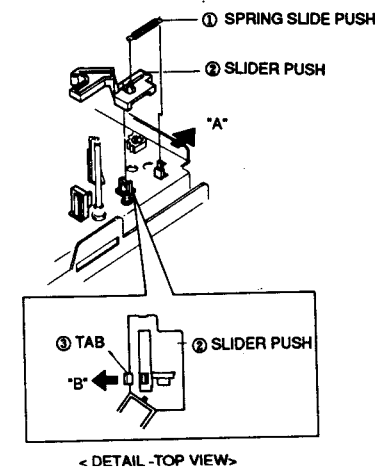


Fig. 51 Slide Push Removal

3-7-34. Prism LED Removal

- 1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
- 2) Lift the prism LED ②.

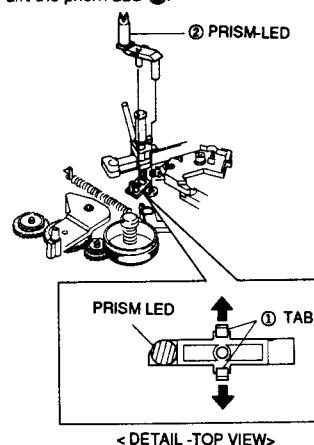


Fig. 52 Prism LED Removal

3-7-35. Lever Record Switch Removal

- 1) Remove the spring record switch ①.
- 2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
- 3) Lift the lever record switch ③.

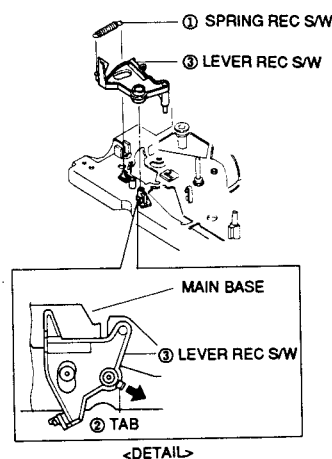


Fig. 53 Lever Record Switch Removal

3-7-36. Full Erase Head Removal

- 1) Remove one(1) screw ①.
- 2) Lift the magnet F/E head ②.

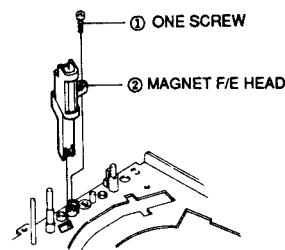


Fig. 54 Full Erase Head Removal

3-7-37. ACE Head Removal & Reassembly

- 1) Release the tab ① holding holder ACE toward arrows.
(Refer to detail drawing 'A')
- 2) Remove one(1) screw ②.
- 3) Lift the magnet ACE head ass'y ③.

Assembly : When reinstalling, be sure to align the three teeth of X-position adjustment gear with the two slot of ACE head base.

NOTE : When adjusting the X-position adjustment gear using (+) driver, do not adjust by force.

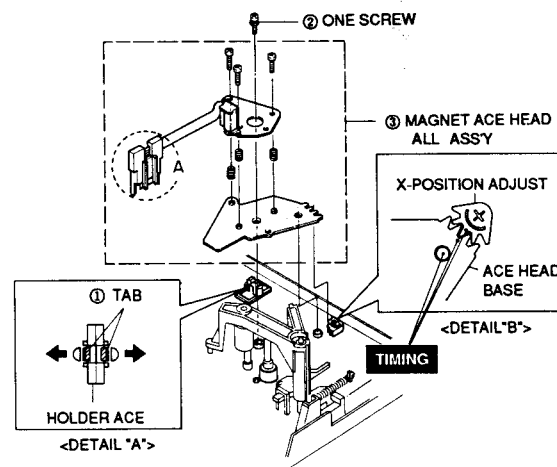


Fig. 55 ACE Head Ass'y Removal & Reassembly

3-7-38. Slide Guide Roller "S", "T" Ass'y Removal

- 1) Remove the cylinder ass'y from the main base.
(Refer to Fig. 11, 19)
- 2) Remove the slide "S", "T" from the gear loading "L", "R" ass'y. (Refer to Fig. 48)
- 3) Move the guide roller "S", "T" ass'y to slot and then lift it to remove. (Refer to arrow)

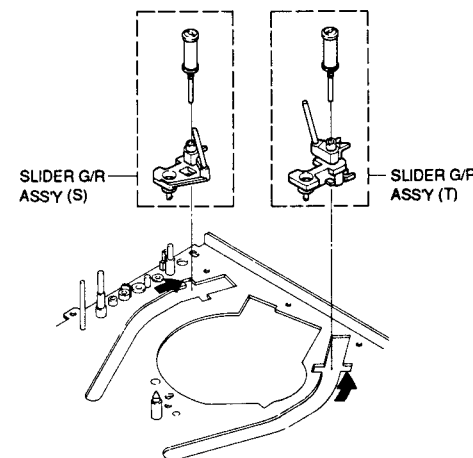


Fig. 56 Slide Guide Roller "S", "T" Ass'y Removal

3-7-39. Slide Guide Roller "S", "T" Ass'y (When all parts except the cylinder assembly are removed.)

- 1) Push four(4) Lever Locks ① of the housing ass'y simultaneously. (Refer to Fig. 57)
- 2) Push the holder cassette ass'y ③ toward arrow "B" while turning the gear master ② toward arrow "A".
(Refer to Fig. 57)
- 3) Load the gear loading L, R ass'y ④, ⑤ to the middle position of guide rail by turning the gear master ② toward arrow "A". (Refer to Fig. 57, 58)
- 4) Install the slide guide roller S, T ⑥, ⑦ into rail slot and then move it to the position of gear loading L, R ass'y ④, ⑤. (Refer to Fig. 58)
- 5) Turn the gear master ② toward arrow "A". (Eject mode)

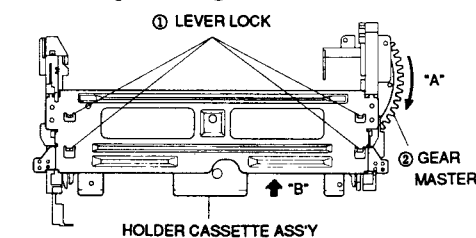


Fig. 57 How to operate the Housing Ass'y

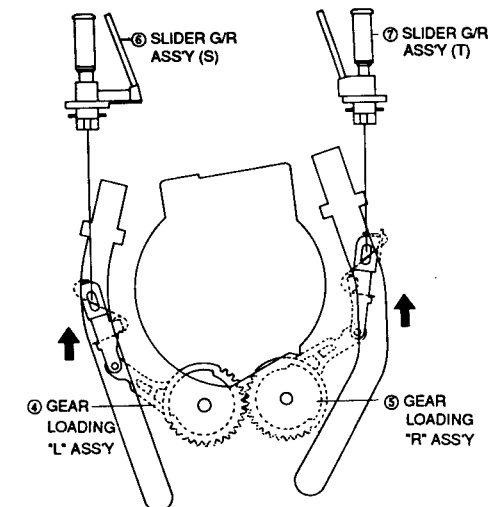


Fig. 58 Assembly of Slide Guide Roller "S", "T" Ass'y

3-8. CLEANING AND LUBRICATION

3-8-1. CLEANING TAPE MECHANISM

Periodic cleaning is necessary to insure continued excellent performance of the tape mechanism. To clean the following parts, patch and solvent are available.

1. Capstan shaft.
2. All tape guide posts.
3. Clutch pulley.
4. Pinch roller.
5. Belt capstan.
6. Capstan motor pulley.

3-8-2. CLEANING OF ROTATING & STATIONARY HEADS

To clean video heads, full erase head, and the audio/control (A/C) head we recommend using a head cleaning kit and solvent.

NOTE: When cleaning video heads, move the cleaning stick in the direction of head rotation (wiping in a vertical direction may damage the heads.).

Press a chamois cloth which has been dipped in cleaning fluid lightly against the rotating cylinder assembly. Clean slowly by rotating the upper cylinder ass'y by hand.

NOTE: Never turn the motor on when cleaning.

3-8-3. LUBRICATION OF TAPE MECHANISM

The tape transport mechanism is properly lubricated at the factory.

In normal use cycles, and with average environmental conditions, additional lubrication should not be required during the first year of operation.

Depending on the frequency of use and environmental conditions, periodic lubrication may be required. When lubricating, remove the old lubricant first, then sparingly apply new lubricant. (Excessive lubricant may be transferred to other assemblies causing malfunction).

Use grease on the following parts every 1,000 hours of operation. (See exploded view for location);

1. Between base pole assembly (L, R) and main base.
2. Gear loading L, R.
3. Slide main.
4. Lever shift.
5. Gear master.
6. Lever slider pinch.
7. Pinch roller.
8. Slide pinch.
9. Base cylinder.

Oil may be required for the following parts after 1,000 hours of operation. (See exploded view for location);

- Main base
1. Arm tension molding.
 2. Shaft reel disk L, R.
 3. Shaft gear relay S, T.
 4. Shaft idler
 5. Shaft clutch

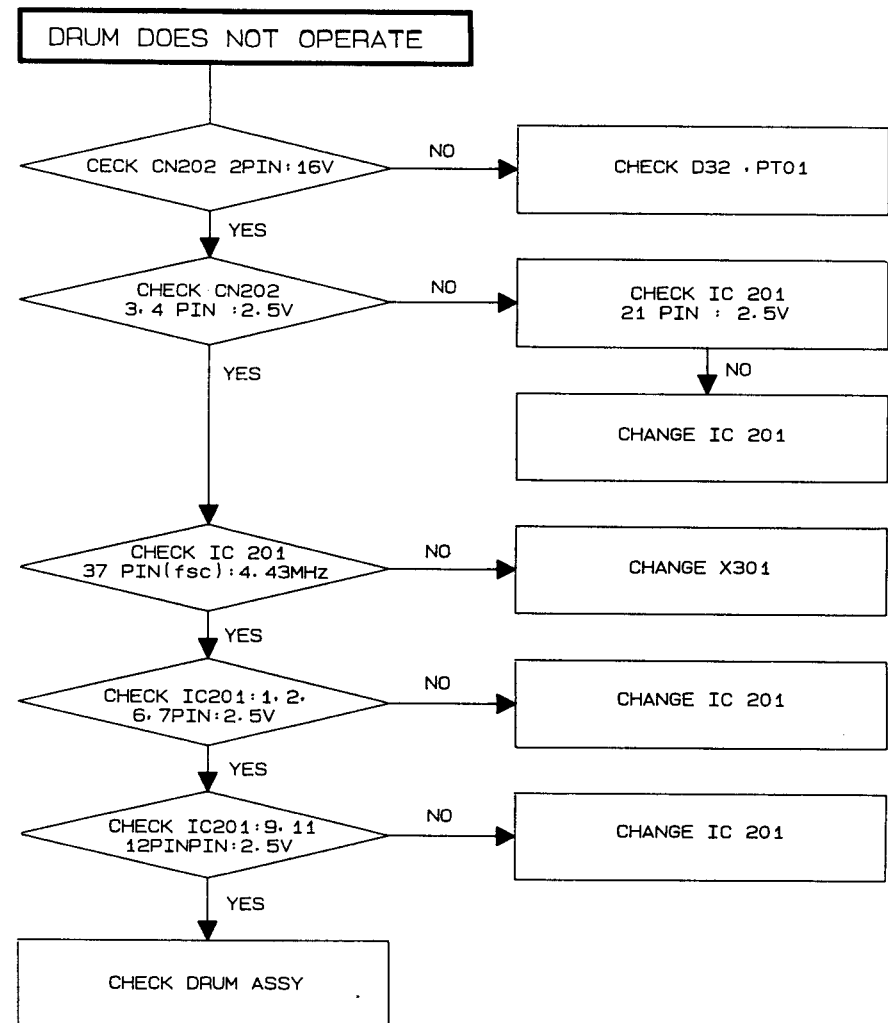
Other parts which are not listed above do not require lubrication, except when parts are replaced. Use appropriate oil or grease as indicated on the exploded view.

4. ABBREVIATIONS

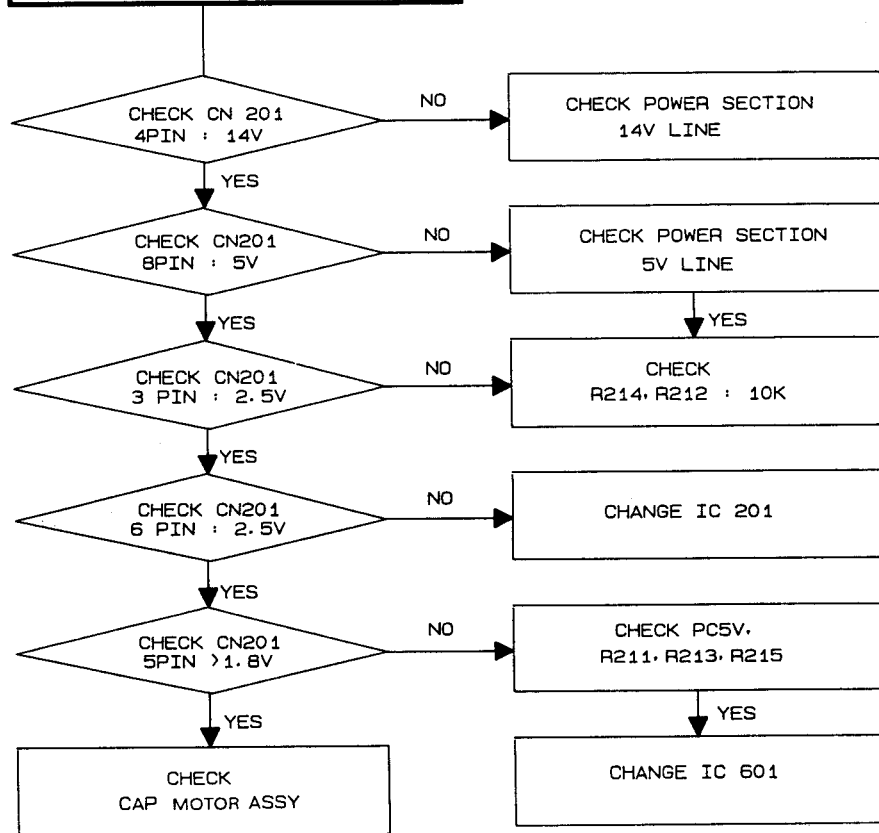
ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
ACC	Automatic Color Control	DL	Delay Line
ACE	Audio Control Erase	DOC	Drop Out Compensator
ACK	Automatic Color Killer	DY	Deflection Yoke
ADJ	Adjustment	E-E	Electronic to Electronic
A/D	Analog/Digital	EMP	Emphasis
AE	Auto Exposure	ENV	Envelope
AF	Auto Focus	EQ	Equalizer
AFC	Automatic Frequency Control	EXT	External
AFM	Audio Frequency Modulation	EVF	Electronic View Finder
AGC	Automatic Gain Control	F/E	Flying Erase
AMP	Amplifier	FET	Field Effect Transistor
APC	Automatic Pedestal Control	FF	Fast Forward, Flip-Flop
ASS'Y	Assembly	FG	Frequency Generator
ATF	Automatic Track Finding	FL	Filter
ATT	Attenuator	FM	Frequency Modulation
AUTO	Automatic	FPC	Flexible Pattern Circuit
AUX	Auxiliary	FPS	Forward Picture Search
BATT	Battery	Freq.	Frequency
BF	Burst Flag	FSC	Frequency Sub Carrier
BFG	Burst Flag Gate	FWD	Forward
BLC	Back Light Compensation	GC	Gain Control
BLK	Black	GEN	Generator
BPF	Band Pass Filter	GND	Ground
BUFF	Buffer	GRN	Green
B/W	Black/White	GRY	Gray
CAM	Camera	HD	Head, Horizontal Drive
CAMCORDER	Camera Recorder	HG	Hall Generator
CAP	Capstan	HPF	High Pass Filter
CAR	Carrier	Hz	Hertz
CASS	Cassette	IC	Integrated Circuit
CBA	Circuit Board Assembly	IR	Infrared
CCD	Charge Coupled Device	INT	Interrupter
CH	Channel	I/O	Input/Output
CHROMA or C	Chrominance	IRE	Institute of Radio Engineers
CLK	Clock	LCD	Liquid Crystal Display
CLP	Clamp	LED	Light Emitting Diode
CM	Capstan Motor	LM	Loading Motor
CN	Connector	LP	Long Play
CNR	Chroma Noise Reduction	LPF	Low Pass Filter
COM	Common	MAX	Maximum
COMB	Comb Filter	M/F	Manual Focus
COMP	Composite	MIC	Microphone
CRT	Cathode Ray Tube	MIN	Minimum
CS	Chip Selector		
CTL	Control		
D/A	Digital/Analog		
dB	Decibel (Measurement Unit)		
DC	Direct Current		
DD	Direct Drive		
DEMOD	Demodulator		
DET	Detect		

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
MIX MODED MTX	Mixer Modulator-Demodulator Matrix	UL UNREG u-COM	Unloading Unregulated Microprocessor
NC NR NOR	Not Connected Noise Reduction Normal	VCO VCR VR V-SYNC VXO	Voltage Control Oscillator Video Cassette Recorder Variable Resistor Vertical-sync. Variable Crystal Oscillator
OFD OP AMP OSC	Overflow Drain Operational Amplifier Oscillator	W/B	White Balance
PB PCM PDC PG PLA PLL P-P PRE-AMP P/S PWM PWR	Play Back Pulse Coded Modulation Programme Delievery Control Pulse Generator Programmable Logic Array Phase Locked Loop Peak to Peak Pre-Amplifier Pause/Still Pulse Width Modulation Power	X-TAL	Crystal
RAM REC REF REG REV REW RF RG ROM RST RPS	Random Access Memory Recording Reference Regulator Reverse Rewind Radio Frequency Reset Gate Read Only Memory Reset Reverse Picture Search	Y/C	Luminance/Chrominance
SCK SFG SHD SHP SHP SI SO SP SN STB S/W SYNC SYSCON	Serial Clock Supply FG Sample Hold Data Sample Hold Precharge Sharpness Serial Data Input Serial Data Output Standard Play Signal to Noise Ratio Strobe Switch Synchronization System Control	4.43MHz	Color Sub Carrier
TP TR TRK	Test Point Transistor Tracking		

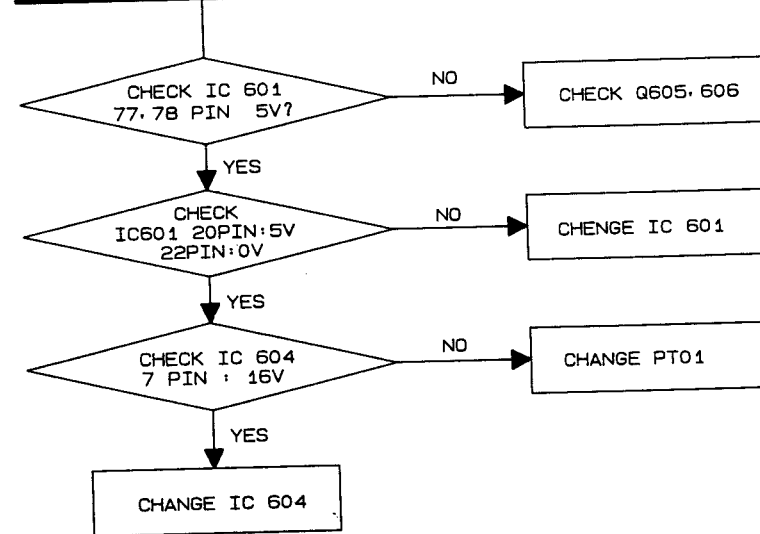
5. TROUBLESHOOTING

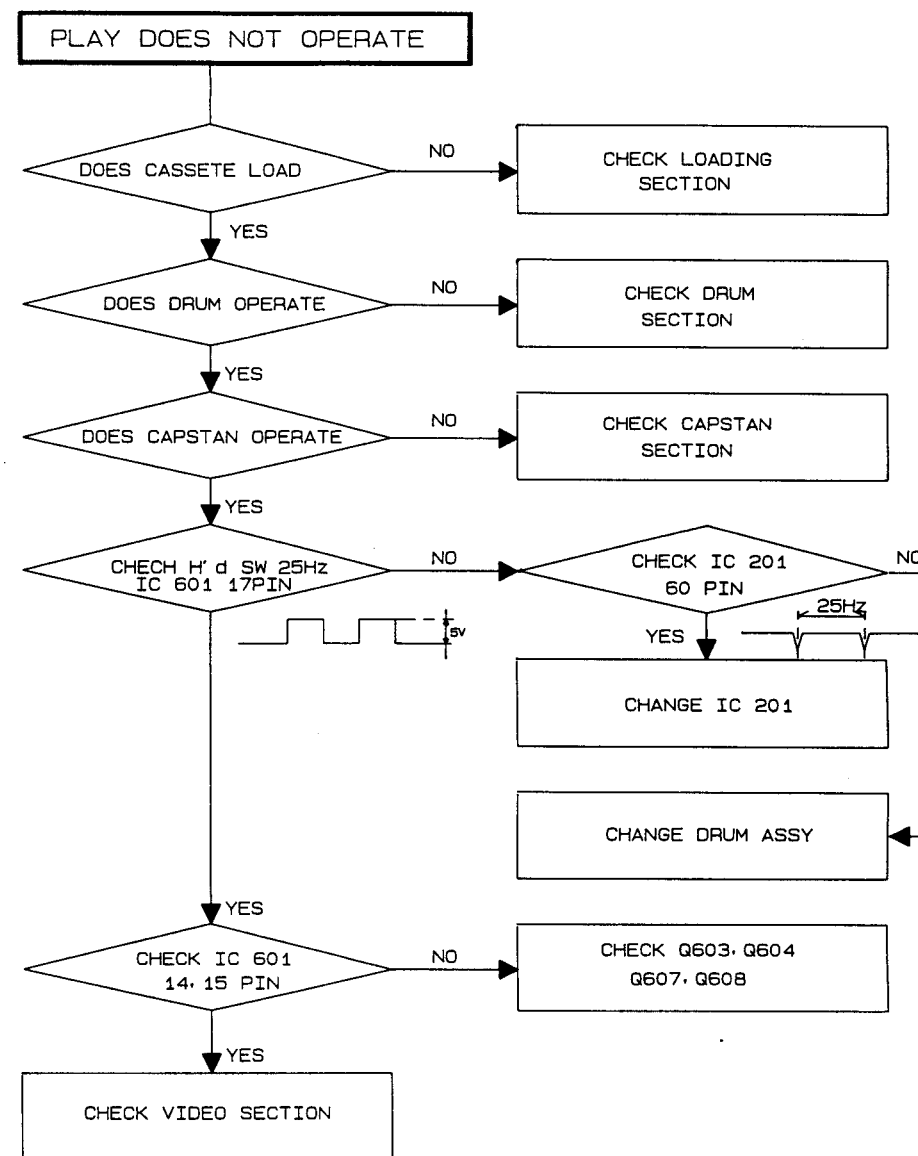
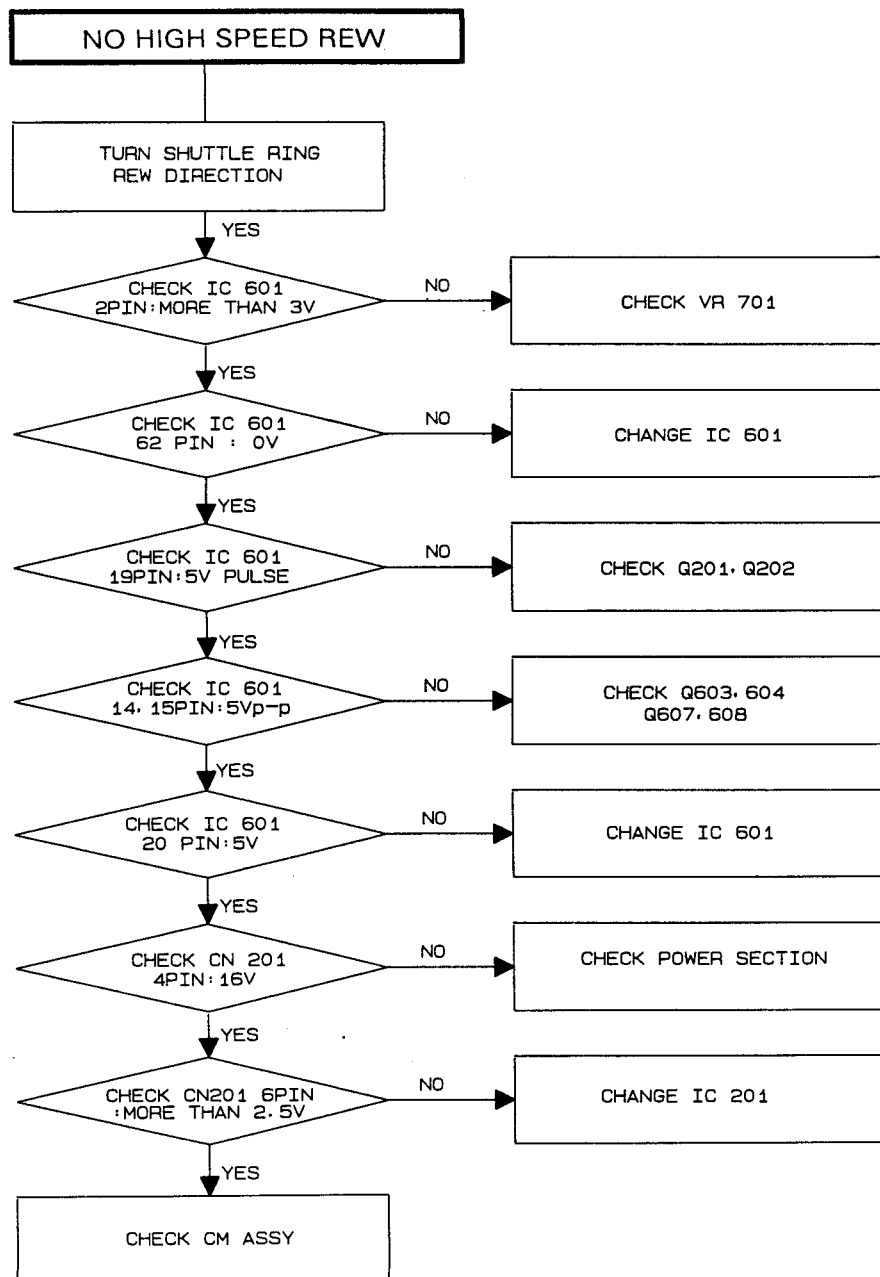


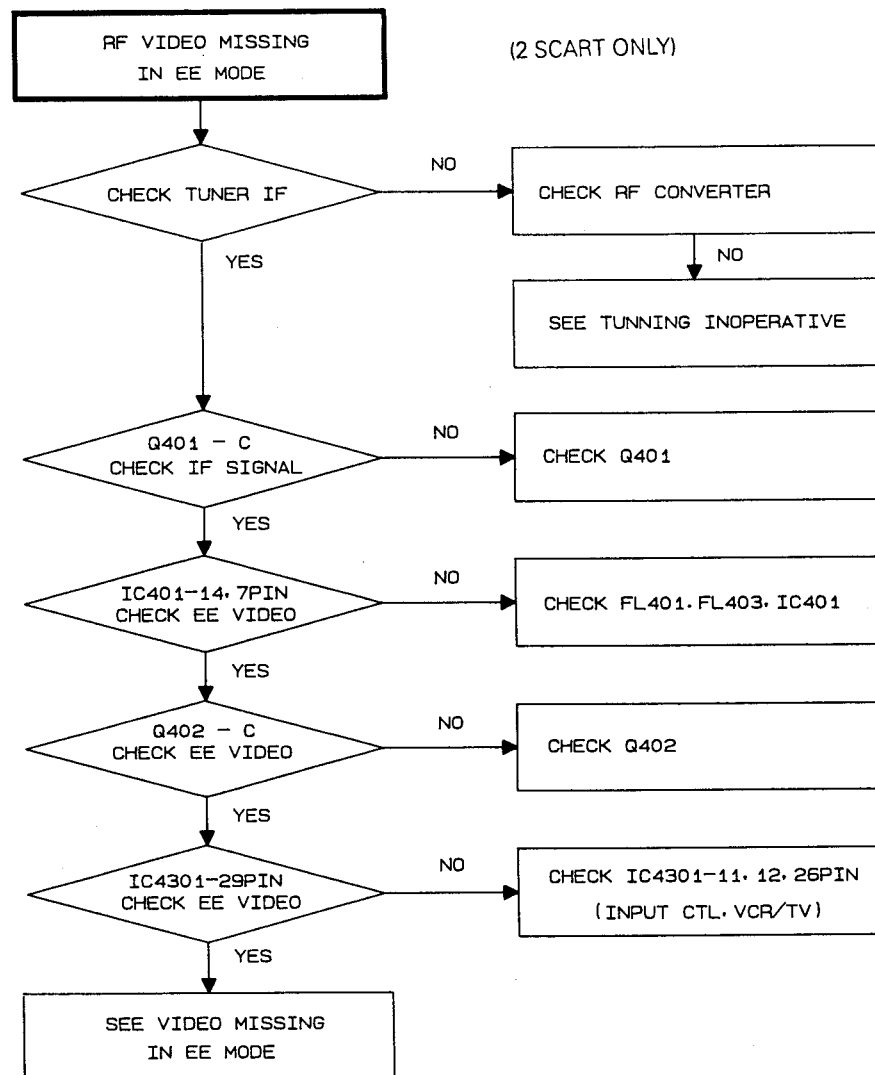
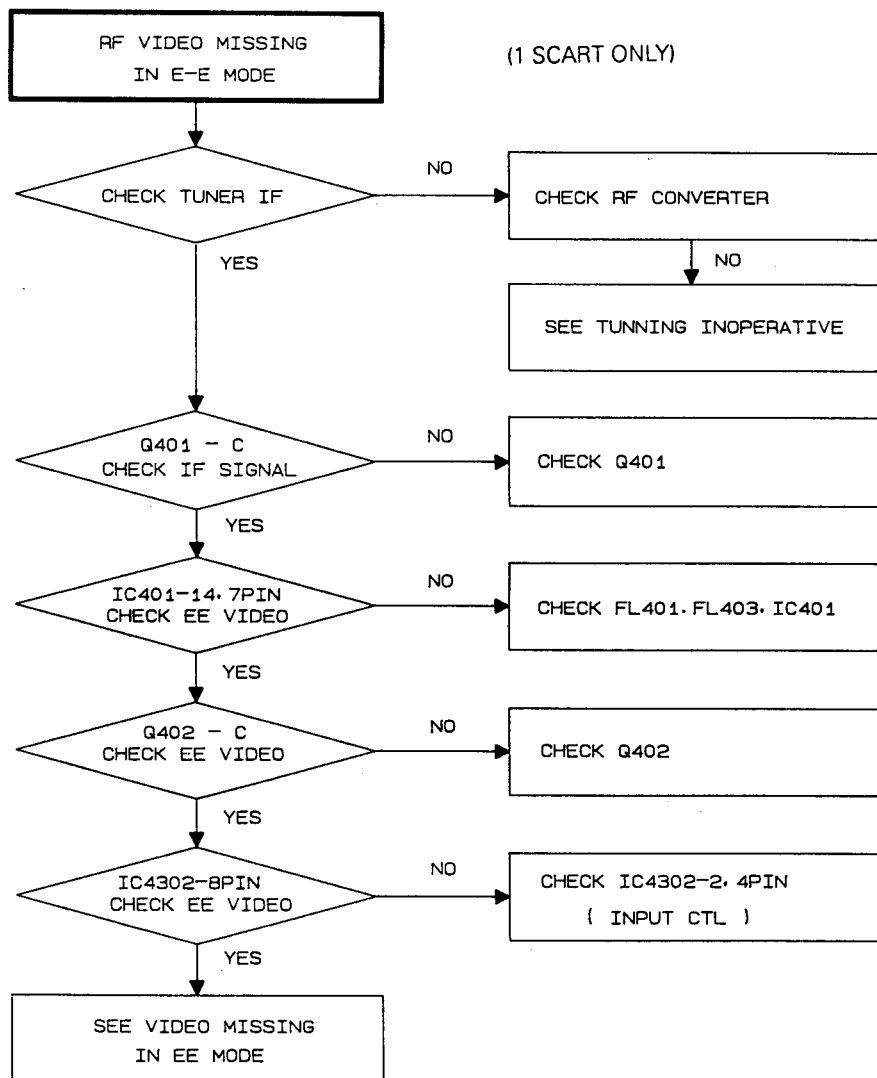
CAPSTAN DOES NOT OPERATE

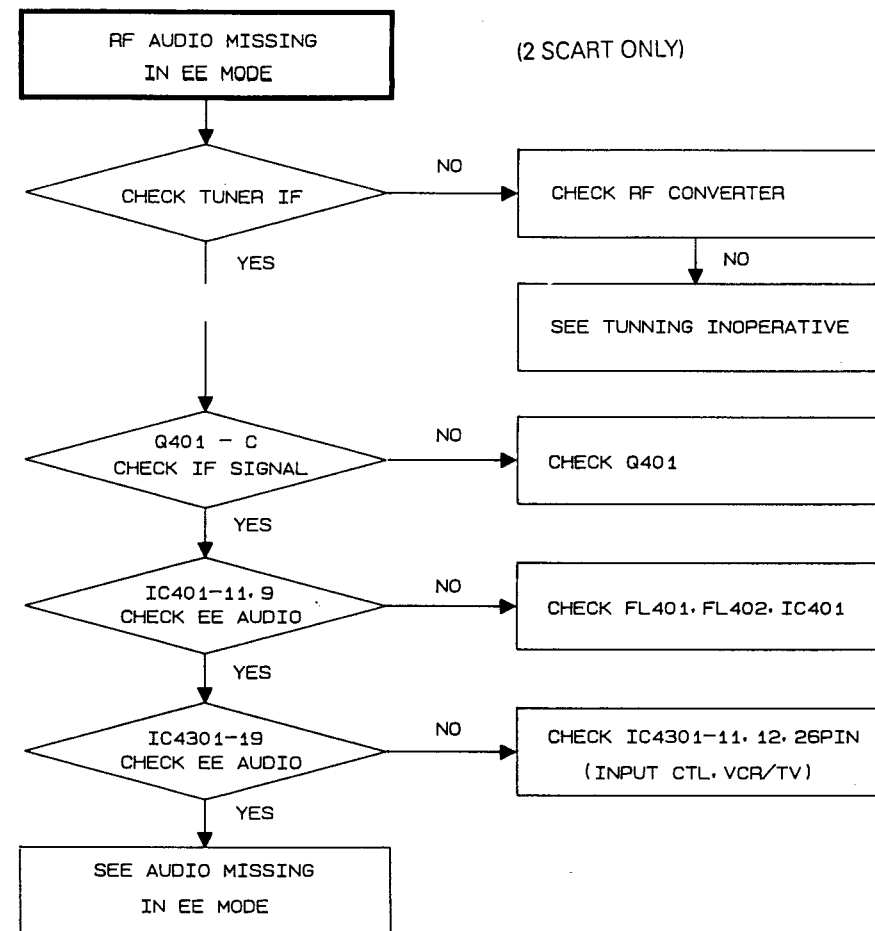
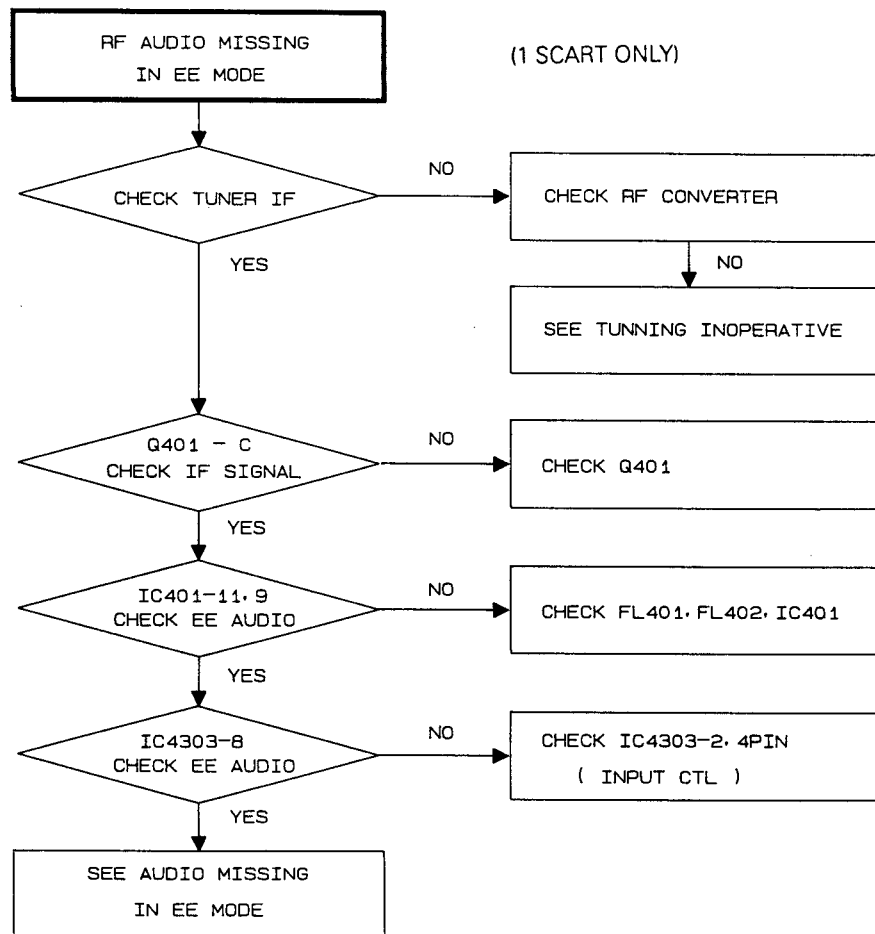


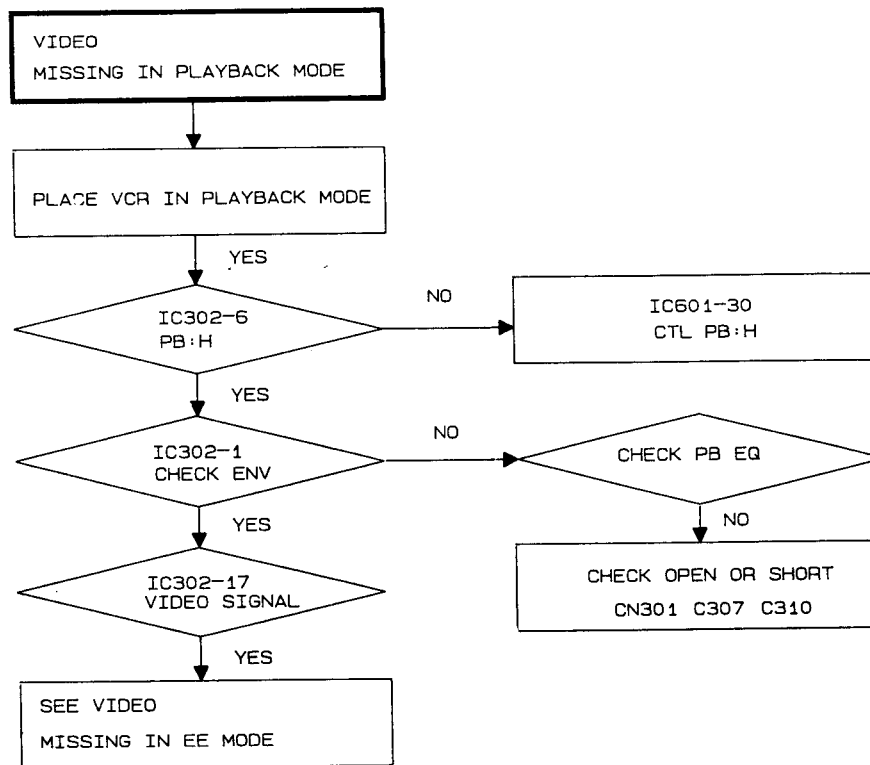
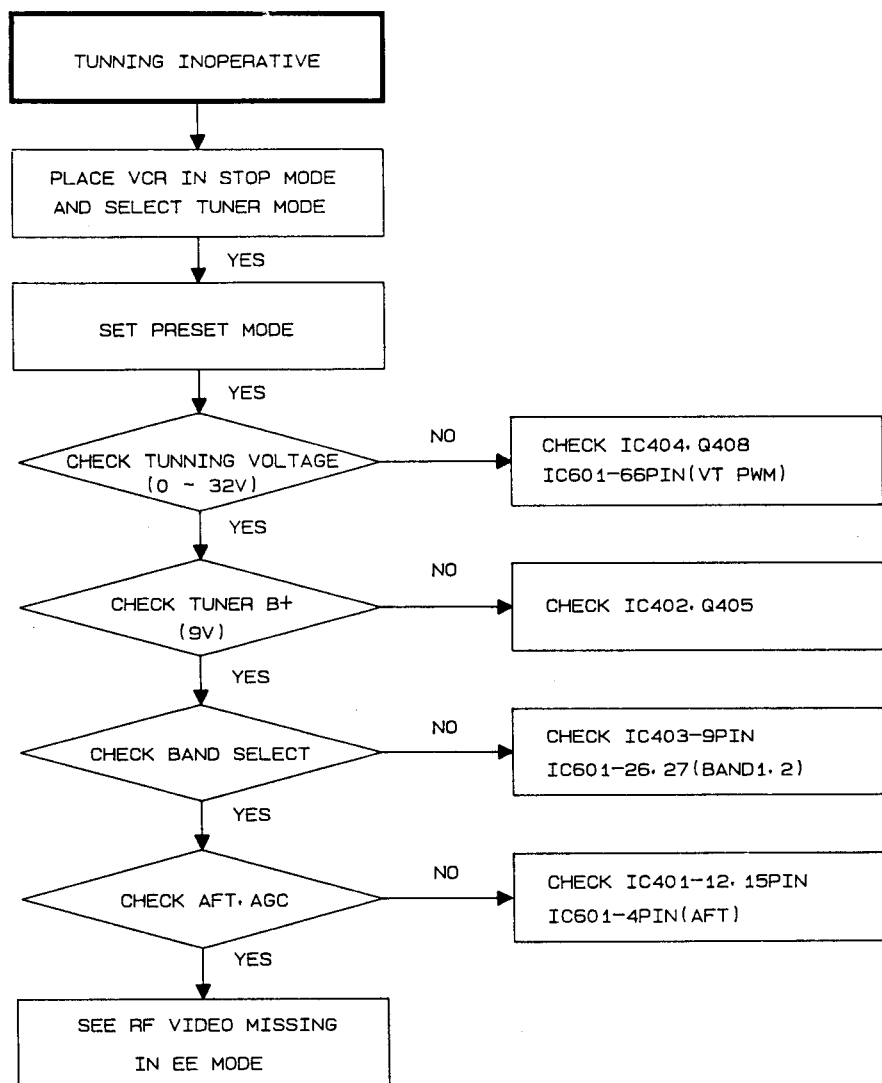
LOADING DOES NOT OPERATE

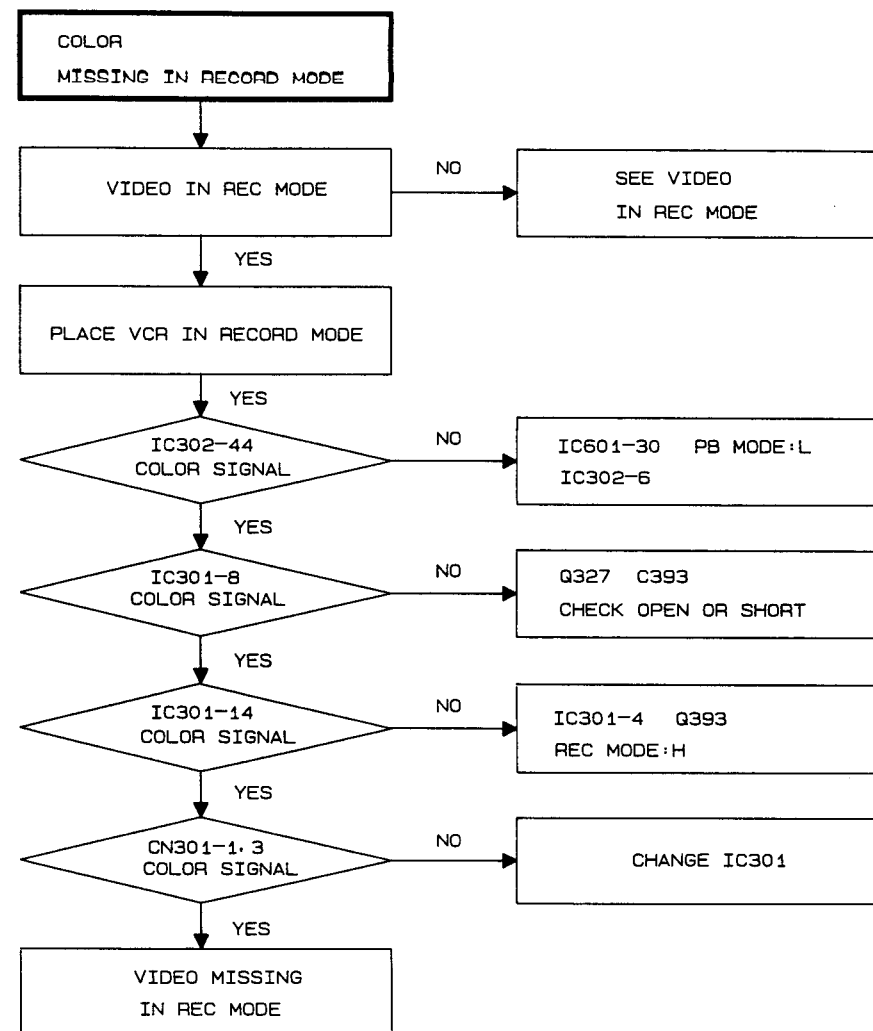
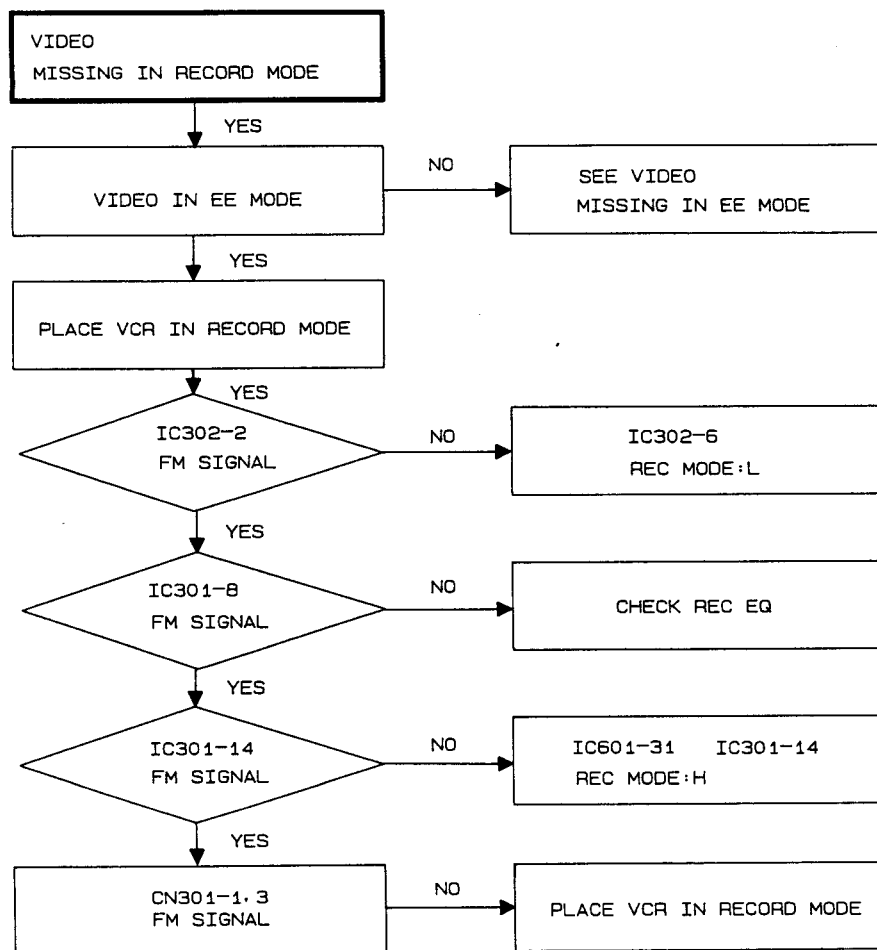


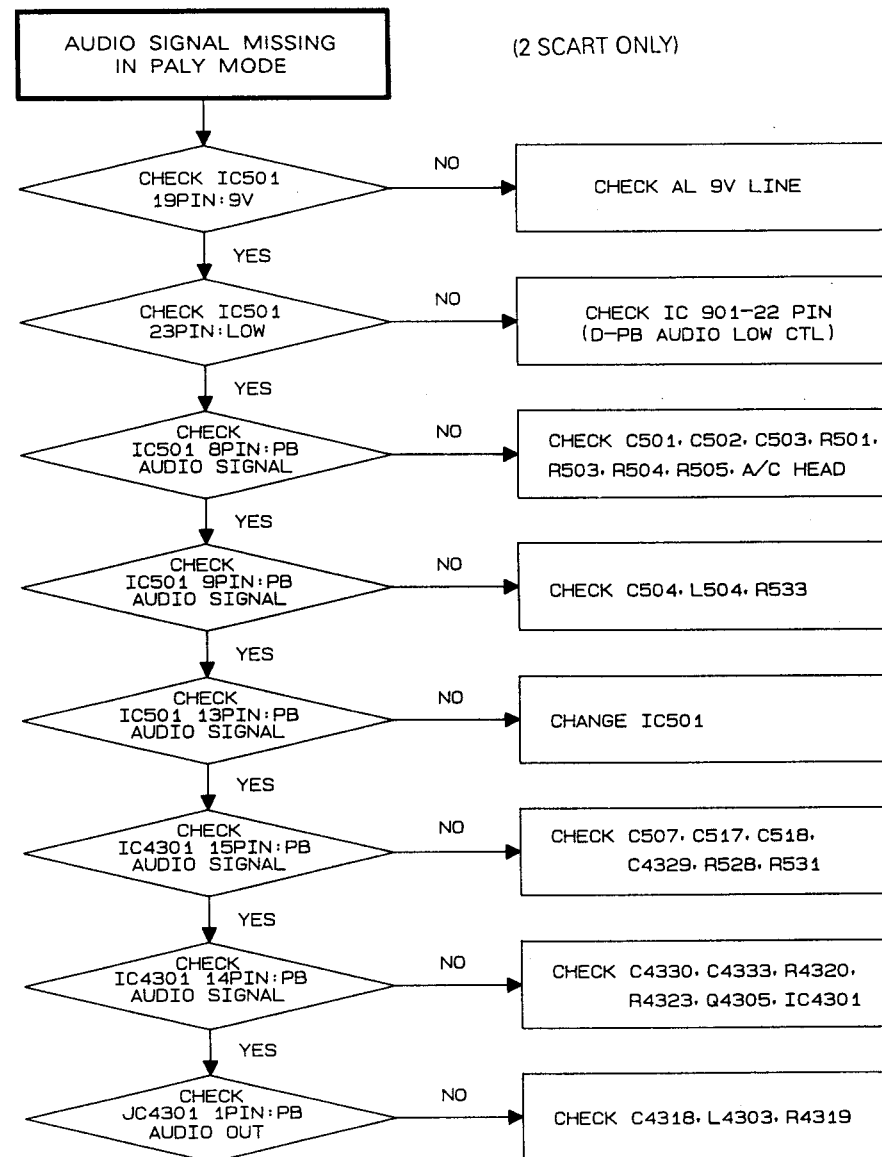
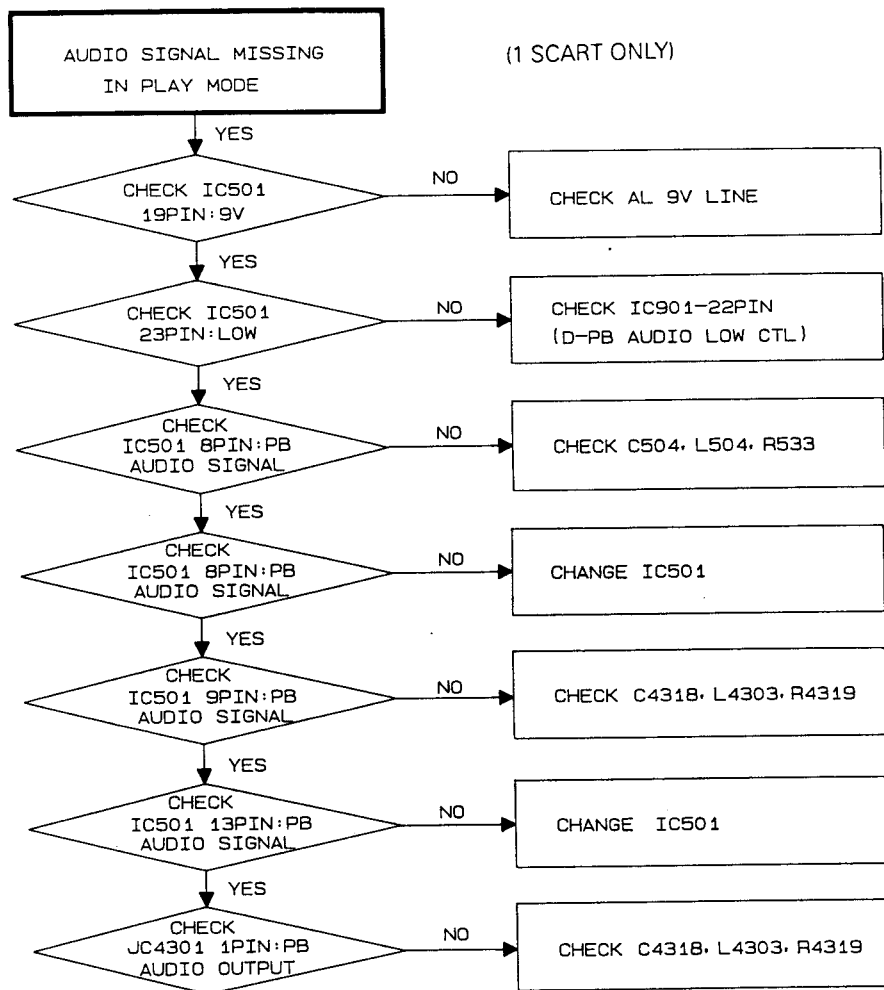


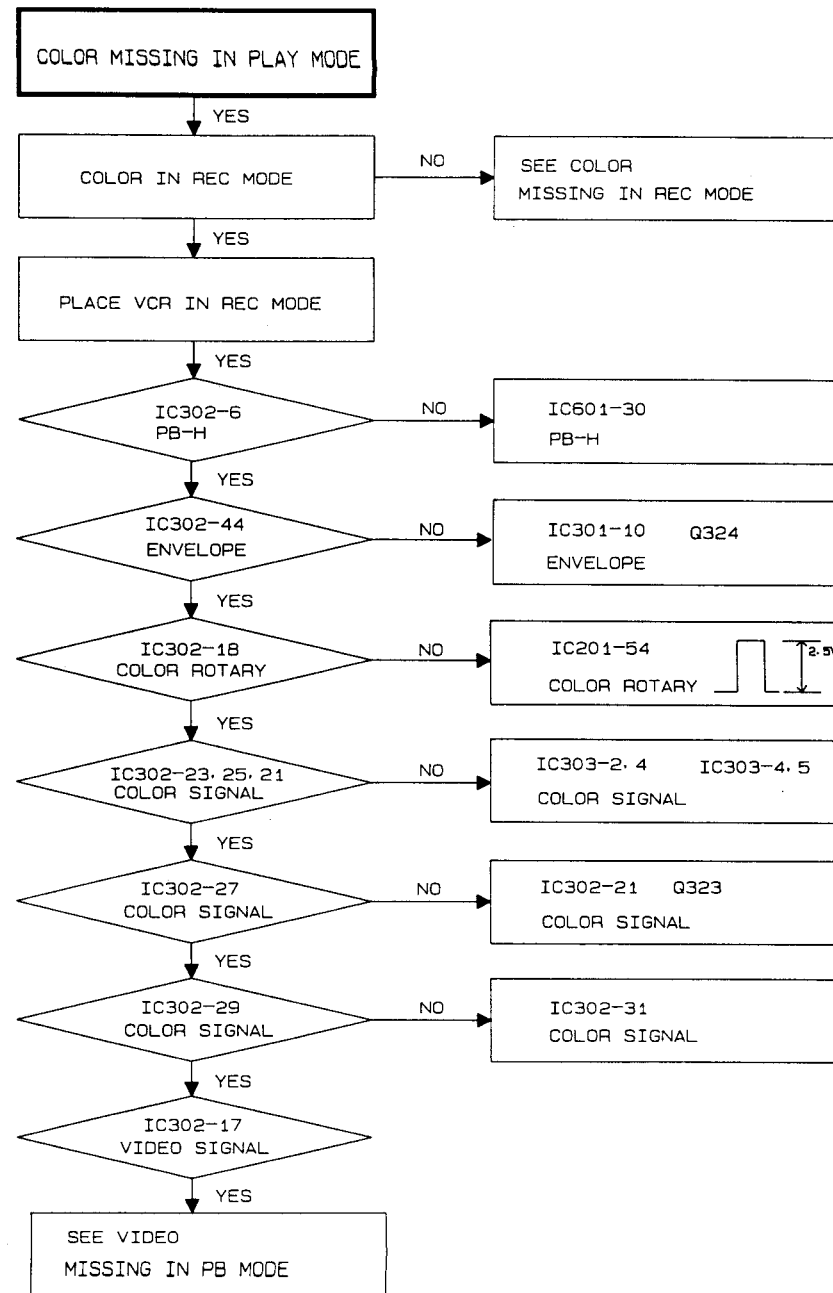
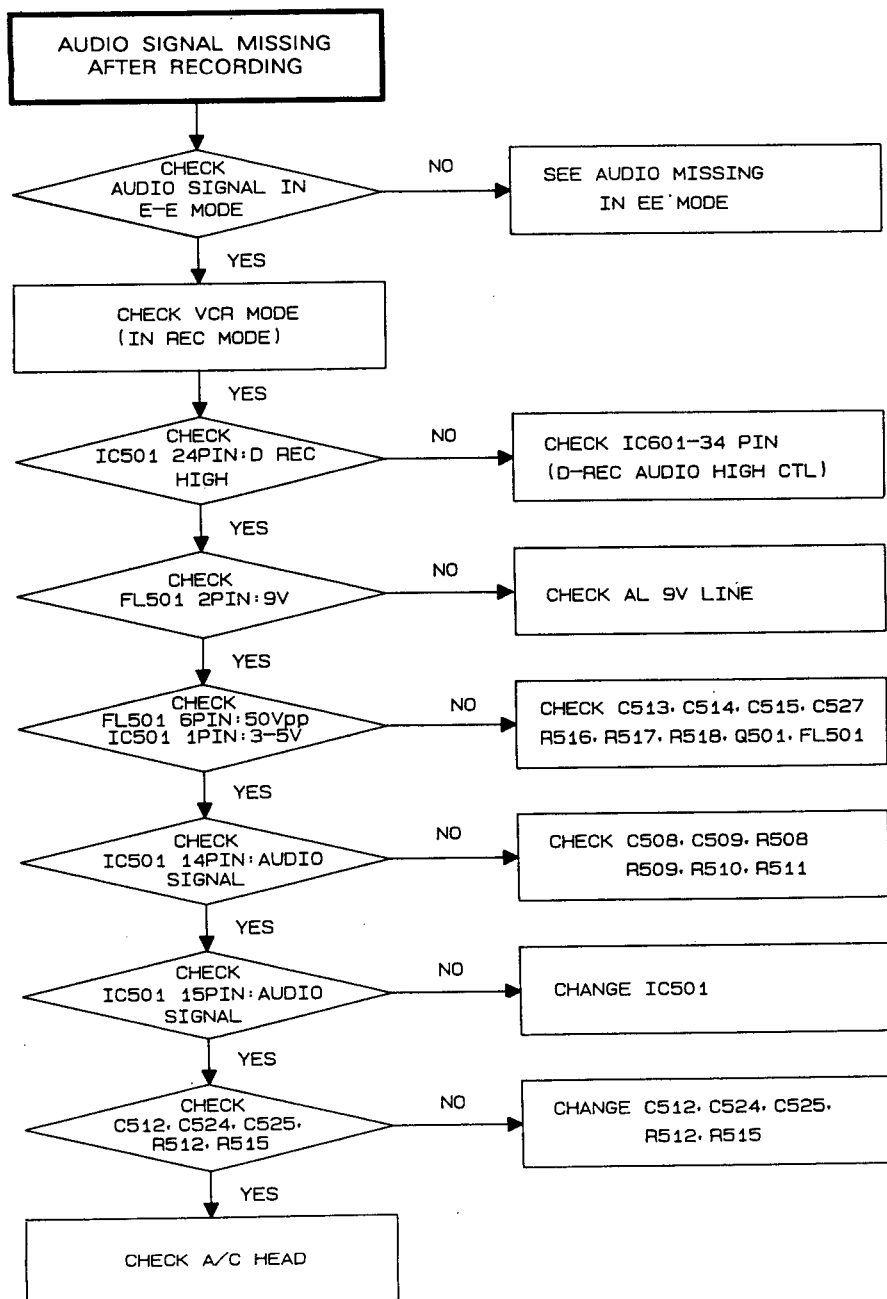












6. CHIP REPLACEMENT

6-1. PRECAUTION FOR THE CHIP REPLACEMENT

1. Do not touch the part directly with the soldering iron. ICs, especially TSOP, are easily damaged by heat.
2. Use care regarding the soldering iron tip. Avoid rapidly heating parts: some parts can be damaged by sudden heating. Preheat the part to about 100°C for several minutes before installing it.
3. Use soldering tip temperature of about 240°C on larger parts, use a slightly higher temperature (about 280°C).
4. The thin (0.3mm) solder for miniature parts. Supplementary flux is thus needed in most cases.

✦ **A/V systems are manufactured using flux which is cleaned by water in the factory. When you replace the part or troubleshooting, use proper flux and solder which can be cleaned by water. Soldering area will corrode if proper flux and solder are not used during replacement. This may cause a fatal error to the system.**

5. Use care not to damage the foil pattern, especially when removing.
6. Because of the many pins, cleanliness of the foil pattern is extremely important after removing the IC.
7. Use care to avoid solder bridges. Remove any that occur.
8. Position the part carefully. This will affect the soldering operation. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier.
9. Do not reuse removed parts.
10. Check for solder joints, especially miniature parts with small leads.
11. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
12. It is important to inspect the work with a magnifier. Check after installing (cold solder joints, etc).

6-2. TOOLS FOR THE CHIP REPLACEMENT

The tools for chip replacement include the following:

1. Thin tip type soldering iron
2. Small flat-blade tip type soldering iron
3. Special desoldering tip iron
4. Airblower unit
5. Flat Package Pick-up
6. Flux can be cleaned by water
7. 0.3mm thin solder can be cleaned by water
8. Desoldering wire
9. Tweezers

6-3. CHIP RESISTORS AND CHIP CAPACITORS

6-3-1. Type of Parts

The type of chip resistors and chip capacitors are as follows.

1. Thick Film Chip Resistors
2. Carbon Film Chip Resistors
3. Metal Film Chip Resistors
4. Chip Ceramic Capacitors
5. Chip Trimming Resistors

6-3-2. Removing the Part

Using two soldering irons ;

1. Use thin tip soldering irons.
2. Use soldering tip temperature of about 280°C.
3. Simultaneously heat both ends of the part.
4. While heating, grasp the part with the tips of the soldering iron to remove.
5. Use desoldering wire to completely remove the old solder.
6. A clean foil pattern for the new part is very important.

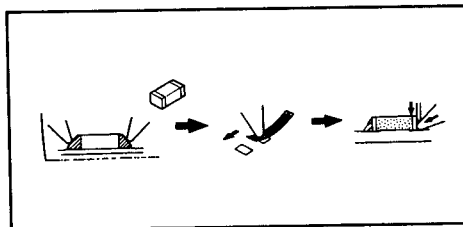


Fig. 1

6-3-3. Installing the Part

1. Clean the area where the new part is to be mounted.
2. Apply flux.
3. Set part correctly into position and prevent it from shifting.
4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3mm) solder between the tip and part so that it flows into the part contact.
5. Check work with a magnifier.

6-4. CHIP TANTALUM CAPACITORS AND CHIP FILTERS

6-4-1. Type of Parts

The type of chip tantalum capacitors and chip filters are as follows.

1. Chip Inductors
2. Chip Tantalum Capacitors
3. Chip Tantalum Electrolytic Capacitors
4. Chip Aluminum Electrolytic Capacitors
5. Chip Transformers
6. Chip Filters

6-4-2. Removing the Part

1. Using special desoldering iron ;

- 1) Select soldering tip according to part size.
- 2) When the solder melts, remove the part
- 3) Bring the tip into contact with the soldered points.
- 4) Remove the old solder with desoldering wire.

2. Using two soldering irons ;

- 1) Use small flat-blade tips.
- 2) Heat both ends of the part simultaneously.
- 3) When the solder melts, grasp and remove the part with the soldering iron tips.
- 4) Remove the old solder with desoldering wire.

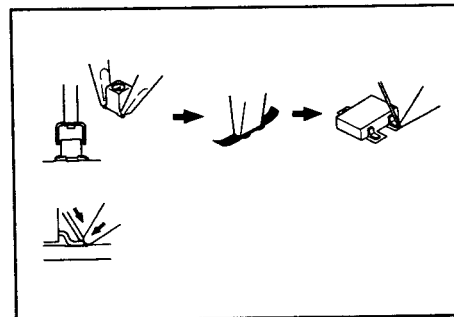


Fig. 2

6-4-3. Installing the Part

1. Clean the area where the new part is to be mounted.
2. Apply flux.
3. Set part correctly into position and prevent it from shifting.
4. Use sharp soldering iron tip. Bring it close to the part contact without actually touching. Melt thin solder between the tip and part so that it flows into the part contact.
5. Check work with a magnifier.

6-5. CHIP VRs, CHIP TRIMMER CAPACITORS, DIODES AND TR.

6-5-1. Type of Parts

The type of the part is as follows.

- 1) Chip VRs
- 2) Chip Trimmer Capacitors
- 3) Diode
- 4) Transistors

6-5-2. Removing the Part

Using two soldering irons ;

1. Use small flat-blade tips.
2. Heat the leads of the part simultaneously.
3. When the solder melts, grasp and remove the part with the soldering iron tips.
4. Remove the old solder with desoldering wire.

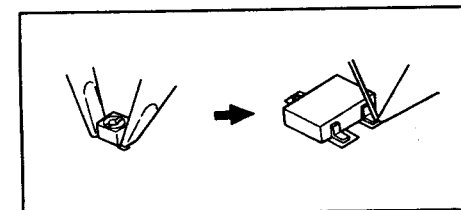


Fig. 3

6-5-3. Installing the Part

1. Clean the area where the new part is to be mounted.
2. Apply flux.
3. Set part correctly into position and prevent it from shifting.
4. Use sharp soldering iron tip. Bring it close to the part contact without actually touching. Melt thin solder between the tip and part so that it flows into the part contact.

6-6. CHIP ICs

6-6-1. Type of Chip ICs

The type of the Chip ICs are as follows ;

1. SOP(Small Outline Package) IC
2. SSOP(Shrink Small Outline Package) IC
3. VSOP(Very Small Outline Package) IC
4. QFP(Quad Flat Package) IC
5. VQFP(Very Quad Flat Package) IC
6. PLCC(Plastic Leaded Chip Carrier) IC
7. TSOP(Thin Small Outline Package) IC

6-6-2. Removing the Part

1. Using special desoldering iron ;

- 1) Select the tip according to the size and shape of the IC.
- 2) Tin the tip with a small amount of the IC leads.
- 3) Set the tip squarely over the IC leads.
- 4) When the solder melts, carefully twist the iron.
- 5) Raise and remove the IC.

2. Using shaped airblower unit ;

- 1) Select the correct nozzle.
- 2) Select the temperature and airblow.
(suggested : temperature : 7, airblow : 4)
- 3) Engage the IC removing tool
- 4) Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.

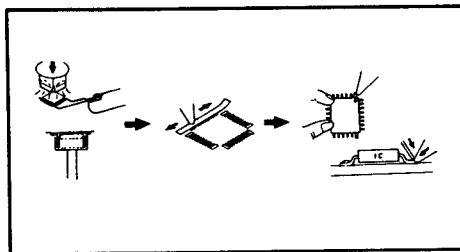


Fig. 4

6-6-3. Installing the Part

1. Use desoldering wire to remove the previous solder.
2. Clean the location.
3. Apply flux.
4. Position the IC and solder two pins at opposite sides.
5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency).
6. Remove any solder bridges with desoldering wire.
7. Inspect the work with a magnifier.

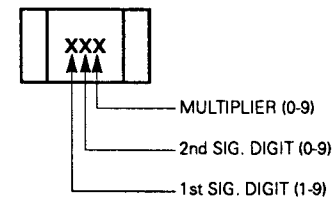
6-7. HOW TO READ LEADLESS (CHIP) COMPONENT VALUES

6-7-1. Check the followings before SMD Troubleshooting

- Cracked or Chipped Component Body
- Cracked or Separated Solder Joints
- Peeling end Terminations or Fractured Leads
- Rejection of Solder from Copper Pads or Component
- Foreign Matter on Copper Pads
- Solder Bridges

6-7-2. SMD (Surface Mounted Device) Identification

1) Standard Chip Resistor Code



Examples

$$\begin{array}{|c|c|c|} \hline & 123 & \\ \hline \end{array} = 12 \times 103 (1000) = 12000 \Omega = 12K \Omega$$

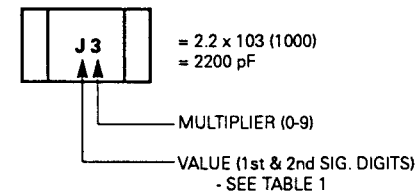
$$\begin{array}{|c|c|c|} \hline & 470 & \\ \hline \end{array} = 47 \times 100 (1) = 47 \Omega$$

$$\begin{array}{|c|c|c|} \hline & 000 & \\ \hline \end{array} = \text{CHIP JUMPER} = 0 \Omega$$

1. Chip Resistor Identification

2. Chip Capacitor Identification

1) Standard Two Place Code



Examples

$$S2 = 4.7 \times 100 = 470 \text{ pF}$$

$$b0 = 3.5 \times 1.0 = 3.5 \text{ pF}$$

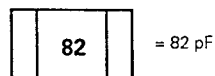
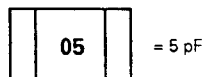
Note : Ceramic chip capacitors have no marking.

VALUE (33 VALUE SYMBOLS) - UPPER AND LOWER CASE LETTERS					MULTIPLIER
A — 1.0	H — 2.0	b — 3.5	f — 5.0	X — 7.5	0 = $\times 1.0$
B — 1.1	J — 2.2	p — 3.6	T — 5.1	t — 8.0	1 = $\times 10$
C — 1.2	K — 2.4	Q — 3.9	U — 5.6	Y — 8.2	2 = $\times 100$
D — 1.3	a — 2.5	d — 4.0	m — 6.0	y — 9.0	3 = $\times 1000$
E — 1.5	L — 2.7	R — 4.3	V — 6.2	Z — 9.1	4 = $\times 10000$
F — 1.6	M — 3.0	e — 4.5	W — 6.8		5 = $\times 100000$ etc.
G — 1.8	N — 3.3	S — 4.7	n — 7.0		

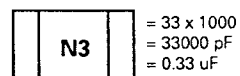
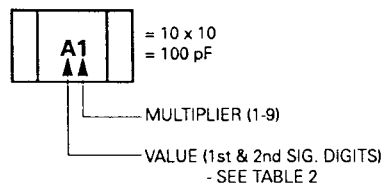
--- TABLE 1 ---

2) Alternate Two Place Code

- Values below 100 pF - Value Read Directly



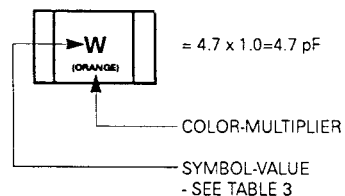
- Values 100 pF and above - Letter / Number Code



VALUE (24 VALUE SYMBOLS) - UPPER CASE LETTERS ONLY						MULTIPLIER
A — 10	F — 16	L — 27	R — 43	W — 68		1 = x 10'
B — 11	G — 18	M — 30	S — 47	X — 75		2 = x 100
C — 12	H — 20	N — 33	T — 51	Y — 82		3 = x 1000
D — 13	J — 22	P — 36	U — 56	Z — 91		4 = x 10000
E — 15	K — 24	Q — 39	V — 62			5 = x 100000 etc.

--- TABLE 2 ---

3) Standard Single Place Code



Examples

R (Green) = 3.3 x 100 = 330 pF

7 (Blue) = 8.2 x 1000 = 8200 pF

VALUE (24 VALUE SYMBOLS) - UPPER CASE LETTERS & NUMERALS						MULTIPLIER
A — 1.0	H — 1.6	N — 2.7	V — 4.3	3 — 6.8		ORANGE = x 1.0
B — 1.1	I — 1.8	O — 3.0	W — 4.7	4 — 7.5		BLACK = x 10
C — 1.2	J — 2.0	R — 3.3	X — 5.1	7 — 8.2		GREEN = x 100
D — 1.3	K — 2.2	S — 3.6	Y — 5.6	9 — 9.1		BLUE = x 1000
E — 1.5	L — 2.4	T — 3.9	Z — 6.2			VIOLET = x 10000
						RED = x 100000

--- TABLE 3 ---

7. ELECTRICAL REPLACEMENT PARTS LIST

Loca.No	Part No	Description & Specification	Remark
601		ASSY MAIN	
	69557-302-212	SV-30XK/SEG,SV-31XK/SEG	
	69557-302-213	SV-30XK/SEC,NSI,SEP,AMF,SEI,EDI,SV-31XK/SEC	
	69557-302-216	SV-40XK/SEG	
	69557-302-217	SV-40XK/SEC,NSI,SEP,SEI	
	69557-302-218	SV-40XK/AMF,EDI	
		SMPS PARTS	
C01	B1102-0268	C-FILM;COS 92 2 275V T 104-N -25/85 AROTRONICS	
C02	61419-001-001	C-FILM;KNE1530 0.1UF/AC250V	
C03	A1100-0536	C-CERAMIC;CKS 45 B 400V 101-K SC B 2G 101-K 12BS	
C04	A1100-0536	C-CERAMIC;CKS 45 B 400V 101-K SC B 2G 101-K 12BS	
C05	A1100-0450	C-CERAMIC;CK 45 B 400V 222-K CK45B500V222K	
C06	A1100-0580	C-CERAMIC;CK 45 B 400V T 332-M SCF2G332M16BS	
C10	A1104-0511	C-ELEC;CE D4 B 400V T 470-M SMH400VB47M 18X25	
C11	A1102-0219	C-FILM;CQ 922 P 630V T 103-K SC-APD135	
C12	61419-001-006	C-CERAMIC;CKB3A 101K 06BS 1KV	
C13	B1102-0260	C-FILM;CQ 922 M 50V T 102-J ECOB1H102JF3	
C14	B1102-0125	C-FILM;CQ 982 P 50V T 104-J 40/85 ECOV1H104JZ3	
C15	61637-208-229	C-ELEC;CEAP 50V 2.2M SA (5X11)	
C16	B1102-0259	C-FILM;CQ 922 M 50V T 562-J ECOB1H562JF3	
C17	61637-208-220	C-ELEC;CEAP 50V 22M SA(6X11)	
C18	61507-121-511	C-POLYESTER;CO921M TAPG 50V 223-J	
C30	61637-511-100	C-ELEC;CEAP 100V 10M SG(6.3X11)	
C31	A1104-0378	C-ELEC;CE 04 F 35V T 331-M STX/KME -40/105	
C32	A1104-0373	C-ELEC;CE 04 F 25V T 331-M STX/KME -40/105	
C33	A1104-0373	C-ELEC;CE 04 F 25V T 331-M STX/KME -40/105	
C34	61637-504-102	C-ELEC;CEAP 16V 100M SG(10X20)	
C35	61617-404-101	C-ELEC;CEAP 16V 100M RSS(6.3X7)	
C36	61637-508-470	C-ELEC;CEAP 50V 47M SG(6.3X11)	
C37	61617-404-101	C-ELEC;CEAP 16V 100M RSS(6.3X7)	
C38	B1102-0125	C-FILM;CQ 982 P 50V T 104-J 40/85 ECOV1H104JZ3	
C39	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C40	A1104-0480	C-ELEC;CE 04 F 16V T 471-M STX/KME -40/105	
CN01	A6010-0971	CONNECTOR-WAFER;GP390-3P-TM WHT G/S	
D01	B4104-0092	DIODE-RECT;D1N60 600V 1A T	
D02	B4104-0092	DIODE-RECT;D1N60 600V 1A T	
D03	B4104-0092	DIODE-RECT;D1N60 600V 1A T	
D04	B4104-0092	DIODE-RECT;D1N60 600V 1A T	
D10	B4102-0006	DIODE-FR;EG01C 3.3V 500MA 0.1US	
D11	62169-406-482	DIODE;1N4148 SAMSUNG	
D12	B4102-0047	DIODE-FR;ERA18-04V1 400V 800MA 0.4US T	
D30	B4102-0047	DIODE-FR;ERA18-04V1 400V 800MA 0.4US T	
D31	B4102-0047	DIODE-FR;ERA18-04V1 400V 800MA 0.4US T	
D32	B4102-0050	DIODE-FR;D3L20U 200V 2.5A 35NS STICK	
D33	B4102-0050	DIODE-FR;D3L20U 200V 2.5A 35NS STICK	
D34	B4102-0047	DIODE-FR;ERA18-04V1 400V 800MA 0.4US T	
D35	B4102-0047	DIODE-FR;ERA18-04V1 400V 800MA 0.4US T	
F01	B3065-0157	FUSE;FST 250V 1.6A 20MM SEMKO S505 C	
IC01	A4008-1122	IC;KA7552 DIP	
IC02	B4161-0032	PHOTO-COUPLER;PC121F ST DIP	
IC03	A4008-0757	IC;KA431Z TO-92 TAPING	
L01	A1151-0023	COIL-LINE FILTER;SHL030 25MH 1.5 STICK	
L02	A1130-0077	COIL-CHOKE;10UH-1 RA Q80 F150KHZ	
L30	A1160-0016	INDUCTOR;70UH-M RT BFS3565R2F	
L31	A1130-0077	COIL-CHOKE;10UH-J RA Q80 F150KHZ	
L32	A1130-0077	COIL-CHOKE;10UH-J RA Q80 F150KHZ	
L33	A1160-0016	INDUCTOR;70UH-M RT BFS3565R2F	
L40	A1160-0016	INDUCTOR;70UH-M RT BFS3565R2F	
PT01	A1206-0072	TRANS-SWITCHING;P:85-276V S:5/38V DEMKO ST	
Q03	62147-401-835	TRANSISTOR;KSA 928A-Y TAPG	
Q04	62137-701-010	TRANSISTOR;KSR 1001 TAPG	
Q05	62137-302-441	TRANSISTOR;KSC 2328-Y TAPG	

Loca No	Part No	Description & Specification	Remark
Q1	B4054-0052	FET;2SK303M-F155 40W 3A 800V MOS/N-CHANNEL ST	△
R10	A1014-0053	R-CEMENT;RMC 2 R 287-K STICK	
R11	A1006-0793	R-METAL FILM;FM 1/4 P 623-J SFR25	
R12	A1006-0793	R-METAL FILM;FM 1/4 P 623-J SFR25	
R13	A1006-0809	R-METAL FILM;FM 1/4 T 333-J SFR25	
R14	A1006-0793	R-METAL FILM;FM 1/4 P 623-J SFR25	
R15	61048-177-151	R-CARBON;RD 1/8 T 151-J	
R16	61048-177-390	R-CARBON;RD 1/8 T 390-J	
R17	B1004-0198	R-METAL OXIDE;RS 2 T 333-J ERG2SJ33E	
R18	B1004-0198	R-METAL OXIDE;RS 2 T 333-J ERG2SJ33E	
R19	61048-177-104	R-CARBON;RD 1/8 T 104-J	
R20	61048-177-270	R-CARBON;RD 1/8 T 270-J	
R21	61048-177-151	R-CARBON;RD 1/8 T 151-J	
R22	61048-177-101	R-CARBON;RD 1/8 T 101-J	
R23	A1014-0055	R-CEMENT;RMC 2 R(S) R47-K STICK	
R24	A1000-0560	R-METAL FILM;FM 1/8 T 512-F	
R30	61048-177-391	R-CARBON;RD 1/8 T 391-J	
R31	61048-177-122	R-CARBON;RD 1/8 T 122-J	
R32	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R33	A1006-0592	R-METAL FILM;FM 1/8 T 302-F	
R34	A1006-0423	R-METAL FILM;FM 1/8 T 222-F	
R36	61048-177-104	R-CARBON;RD 1/8 T 104-J	
R37	A1006-0812	R-METAL FILM;FM 1/4 T 392-J SFR25	
VA1	A1330-0058	VARIATOR;SYC471D-14A 470V 0.6W 2500A	
VA2	A1330-0058	VARIATOR;SYC471D-14A 470V 0.6W 2500A	
ZD11	62169-403-829	DIODE-ZENER;MTZ 300	
ZD12	62169-423-030	DIODE-ZENER;MTZ-18C	
ZD13	A4106-0006	DIODE-ZENER;MTZ4.7B 4.7V 1MA T	
POWER PARTS			
C101	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EON053F10	
D103	B4104-0046	DIODE-RECT;1N4002GP 200V 1A	
D104	B4104-0046	DIODE-RECT;1N4002GP 200V 1A	
D105	B4104-0046	DIODE-RECT;1N4002GP 200V 1A	
D153	B4104-0046	DIODE-RECT;1N4002GP 200V 1A	
R101	A1006-0796	R-METAL FILM;FM 1/4 T 102-J SFR25	
R105	A1020-0322	R-CHIP;RH 1/8 BS 222-J 20X12 FD3A2BY22J	
R109	A1020-0321	R-CHIP;RH 1/8 BS 333-J 20X12 FD3A2BY33J	
ZD102	62169-403-829	DIODE-ZENER;MTZ 300	
SYSTEM CONTROL PARTS			
C601	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EON053F10	
C602	61407-117-104	C-CERAMIC;AXIAL;CAX Y TAPG 16V 103N-T	
C603	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EON053F10	
C604	A1104-0611	C-ELEC;CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C606	61407-117-101	C-CERAMIC;AXIAL;UP050F 104Z	
C607	B1104-0294	C-ELEC;CE 03 E 5.5V T 104-Z SUPER/EECS5R5T104	
C608	61637-502-471	C-ELEC;CEAP 6.3V 470M SG(8X11.5)	
C609	61407-117-101	C-CERAMIC;AXIAL;UP050F 104Z	
C610	A1100-0443	C-CERAMIC;CHIP;CC OB SL 50V 150-J 20X12 UCN053SL15	
C611	A1100-0443	C-CERAMIC;CHIP;CC OB SL 50V 150-J 20X12 UCN053SL15	
C612	61407-117-102	C-CERAMIC;AXIAL;CAX B TAPG 102K-T	
C613	61407-117-102	C-CERAMIC;AXIAL;CAX B TAPG 102K-T	
C614	B1102-0125	C-FILM;CO 982 P 50V T 104-J 40/85 ECGV1H104JZ3	
C615	61407-117-228	C-CERAMIC;AXIAL;CK OA F 25V 223Z/F 25V 223ZT	
C616	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EON153F22	
C617	61407-117-101	C-CERAMIC;AXIAL;UP050F 104Z	
C618	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EON053F10	
C619	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C620	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EON153F22	
CN601	B6010-0915	CONNECTOR-WAFER;TMC-A02X-A1 WHT STICK	
CN602	A6010-1366	CONNECTOR-WAFER;35223-2010 WHT MOLEX SIDE ENTRY	
CN603	A6010-1366	CONNECTOR-WAFER;35223-2010 WHT MOLEX SIDE ENTRY	
D601	62169-406-482	DIODE;1N4148 SAMSUNG	
D602	B4104-0046	DIODE-RECT;1N4002GP 200V 1A	
D603	B4104-0046	DIODE-RECT;1N4002GP 200V 1A	

Loca No	Part No	Description & Specification	Remark
IC601	67199-0218-00	MICOM;HD6433726-A79F SV-80X QFP	
IC602	62119-401-300	IC;KA8301(N.M)	
IC603	A4008-0754	IC;KA7533 DIP	
IC604	B4012-0110	IC-LINEAR;XL24C02 DIP	
L601	62429-833-101	COIL-PEAKING AXIAL;BAL04ST 101K	
LD601	B4150-0133	LED-INFRARED;GL381 YEL 950NM/3.5V	
PT601	B4161-0036	PHOTO-INTERRUPTER;SG-105LF3 ST	
PT602	B4161-0036	PHOTO-INTERRUPTER;SG-105LF3 ST	
Q601	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q602	62137-701-013	TRANSISTOR;KSR 1004 TAPG	
Q607	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q608	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
R601	A1020-0795	R-CHIP;RH 1/8 BS 363-J 20X12	
R603	61048-177-333	R-CARBON;RD 1/8 T 333-J	
R604	61048-177-224	R-CARBON;RD 1/8 T 224-J	
R605	61048-177-391	R-CARBON;RD 1/8 T 391-J	
R606	61048-177-224	R-CARBON;RD 1/8 T 224-J	
R607	A1020-0334	R-CHIP;RH 1/8 BS 391-J 20X12 FD3A2BY391J	
R608	A1020-0811	R-CHIP;RH 1/8 BS 683-J 20X12	
R609	A1020-0338	R-CHIP;RH 1/8 BS 511-J 20X12 FD3A2BY511J	
R610	61048-177-270	R-CARBON;RD 1/8 T 270-J	
R611	A1020-0335	R-CHIP;RH 1/8 BS 472-J 20X12 FD3A2BY472J	
R612	A1020-0825	R-CHIP;RH 1/8 BS 473-J 20X12	
R613	B1004-0357	R-METAL OXIDE;RS 2 RT 3P9-J	
R615	61048-177-513	R-CARBON;RD 1/8 T 513-J	
R616	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 FD3A2BY122J	
R617	61048-177-472	R-CARBON;RD 1/8 T 472-J	
R618	A1020-0335	R-CHIP;RH 1/8 BS 472-J 20X12 FD3A2BY472J	
R619	A1020-0825	R-CHIP;RH 1/8 BS 473-J 20X12	
R620	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R621	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R622	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R623	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R625	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R626	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 FD3A2BY122J	
R627	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 FD3A2BY122J	
R628	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R629	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R632	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R633	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R634	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R635	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R637	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R638	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R641	A1020-0343	R-CHIP;RH 1/8 BS 105-J 20X12 FD3A2BY105J	
R644	A1020-0455	R-CHIP;RH 1/8 BS 152-J 20X12 FD3A2BY152J	
R648	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R649	A1020-0442	R-CHIP;RH 1/8 BS 224-J 20X12 FD3A2BY224J	
R650	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R651	61048-177-224	R-CARBON;RD 1/8 T 224-J	
R660	A1020-0778	R-CHIP;RH 1/8 BS 154-J 20X12	
R661	A1020-0778	R-CHIP;RH 1/8 BS 154-J 20X12	
R662	A1020-0329	R-CHIP;RH 1/8 BS 153-J 20X12 FD3A2BY153J	
R663	A1020-0329	R-CHIP;RH 1/8 BS 153-J 20X12 FD3A2BY153J	
R664	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R665	A1020-0774	R-CHIP;RH 1/8 BS 123-J 20X12	
R666	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R667	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R670	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R690	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R691	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R692	61048-177-101	R-CARBON;RD 1/8 T 101-J	
R693	61048-177-101	R-CARBON;RD 1/8 T 101-J	
S601	B4064-0007	TR-PHOTO;PT495F 35V 20MA 50MM 860NM/1V 20DEG	

Loca.No	Part No	Description & Specification	Remark
S602	B4064-0007	TR-PHOTO:PT495F 35V 20MA 50MM 860NM/1V 20DEG	
SW601	66203-0020-00	SWITCH-PROGRAM:MXS002028MLB0	
W237	61048-177-621	R-CARBON:RD 1/8 T 621-J	
W273	62427-020-010	COIL PEAKING:AXIAL:LAL02TB 1R0J TAPG	
W290	61048-177-102	R-CARBON:RD 1/8 T 102-J	
XT601	B1283-0036	RESONATOR-CERAMIC:8MHZ EFOEC8004T4 3/ON J TAPG	
XT602	64539-021-009	CRYSTAL:32.768KHZ	
SERVO PARTS			
C201	A1100-0135	C-CERAMIC,CHIP:CK 73 X7R 50V T 473-K C2012 21B473K	
C202	61407-117-102	C-CERAMIC,AXIAL:CAX B TAPG 102K-T	
C203	61453-130-226	C-CERAMIC,CHIP:1206 5E 224ZAT MA	
C204	61617-405-470	C-ELECTROLYTIC:CE04W TAPG 25V 47M(RSS 6.3X7)	
C206	A1104-0609	C-ELEC:CE 04 -40/85 35V T 4R7-M SRE 4X5	
C207	61407-117-104	C-CERAMIC,AXIAL:CAX Y TAPG 16V 103N-T	
C208	A1100-0970	C-CERAMIC,CHIP:CK OB Y5P 50V 820-K 20X12 UCN053A82	
C209	A1100-0439	C-CERAMIC,CHIP:CK OB A 50V 181-K 20X12 UCN053A181K	
C210	61407-117-228	C-CERAMIC,AXIAL:CK OA F 25V 223Z/F 25V 223ZT	
C211	A1104-0674	C-ELEC:CE 04 -40/85 16V T 330-M SRE 6.3X5 P15 33UF	
C212	A1100-0444	C-CERAMIC,CHIP:CK OB Y 25V 102-M 20X12 TON053Y102M	
C213	A1100-0444	C-CERAMIC,CHIP:CK OB Y 25V 102-M 20X12 TON053Y102M	
C214	61453-130-226	C-CERAMIC,CHIP:1206 5E 224ZAT MA	
C220	A1104-0609	C-ELEC:CE 04 -40/85 35V T 4R7-M SRE 4X5	
C223	A1104-0611	C-ELEC:CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C224	61453-130-161	C-CERAMIC,CHIP:0805 5E 683MAT MA	
C225	A1104-0610	C-ELEC:CE 04 -40/85 50V T 010-M NP SRE-BP 3.5X5	
C226	61453-130-226	C-CERAMIC,CHIP:1206 5E 224ZAT MA	
C227	A1104-0611	C-ELEC:CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C228	A1104-0611	C-ELEC:CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C233	A1100-0961	C-CERAMIC,CHIP:CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C235	61453-130-226	C-CERAMIC,CHIP:1206 5E 224ZAT MA	
C238	A1100-0961	C-CERAMIC,CHIP:CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C239	61453-130-153	C-CERAMIC,CHIP:0805 5C 153KAT MA	
C240	61453-130-226	C-CERAMIC,CHIP:1206 5E 224ZAT MA	
C241	A1100-0855	C-CERAMIC,CHIP:CK OB Y5P 50V 221-K 20X12 UCN053B22	
C242	A1100-0855	C-CERAMIC,CHIP:CK OB Y5P 50V 221-K 20X12 UCN053B22	
C250	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C255	61617-405-470	C-ELECTROLYTIC:CE04W TAPG 25V 47M(RSS 6.3X7)	
C256	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C260	61407-117-102	C-CERAMIC,AXIAL:CAX B TAPG 102K-T	
C270	A1100-0961	C-CERAMIC,CHIP:CK 73 Y5V 25V 104-Z C2010 UMK210F10	
CN201	B6010-0855	CONNECTOR-HOUSING:TKC-G08P-A1 BLK	
CN202	B6010-0857	CONNECTOR-HOUSING:TKC-G08P-A1 BLK	
D202	62169-406-482	DIODE:1N4148 SAMSUNG	
D203	62169-406-482	DIODE:1N4148 SAMSUNG	
D204	62169-406-482	DIODE:1N4148 SAMSUNG	
D205	62169-406-482	DIODE:1N4148 SAMSUNG	
IC201	A4008-1181	IC:KA8334 QFP 60PIN STICK	
L201	62429-833-101	COIL-PEAKING AXIAL:BAL04ST 101K	
Q201	62137-103-380	TRANSISTOR:KSA 733-Y TAPG	
Q202	A4050-0001	TR-GENERAL:2SD1468SQ 300MA 0.5MA 150MHZ 30V SI/NPN	
Q203	62137-701-013	TRANSISTOR:KSR 1004 TAPG	
R201	A1020-0320	R-CHIP:RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R202	A1020-0824	R-CHIP:RH 1/8 BS 471-J 20X12	
R203	A1020-0343	R-CHIP:RH 1/8 BS 105-J 20X12 RD3A2BY105J	
R204	A1020-0441	R-CHIP:RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R205	A1020-0320	R-CHIP:RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R206	A1020-0789	R-CHIP:RH 1/8 BS 271-J 20X12	
R207	61048-177-104	R-CARBON:RD 1/8 T 104-J	
R208	A1020-0825	R-CHIP:RH 1/8 BS 473-J 20X12	
R209	A1020-0825	R-CHIP:RH 1/8 BS 473-J 20X12	
R211	A1020-0344	R-CHIP:RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R212	A1020-0441	R-CHIP:RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R213	A1020-0825	R-CHIP:RH 1/8 BS 473-J 20X12	
R214	A1020-0441	R-CHIP:RH 1/8 BS 103-J 20X12 RD3A2BY103J	

Loca.No	Part No	Description & Specification	Remark
R215	61048-177-473	R-CARBON:RD 1/8 T 473-J	
R216	A1020-0544	R-CHIP:RH 1/8 CS 104-J 20X12 RD3A2BY104J	
R217	A1020-0795	R-CHIP:RH 1/8 BS 363-J 20X12	
R220	A1020-0544	R-CHIP:RH 1/8 CS 104-J 20X12 RD3A2BY104J	
R221	A1020-0442	R-CHIP:RH 1/8 BS 224-J 20X12 RD3A2BY224J	
R222	61048-177-684	R-CARBON:RD 1/8 T 684-J	
R223	A1020-0343	R-CHIP:RH 1/8 BS 105-J 20X12 RD3A2BY105J	
R224	A1020-0825	R-CHIP:RH 1/8 BS 473-J 20X12	
R225	A1020-0343	R-CHIP:RH 1/8 BS 105-J 20X12 RD3A2BY105J	
R226	A1020-0808	R-CHIP:RH 1/8 BS 564-J 20X12	
R227	61048-177-393	R-CARBON:RD 1/8 T 393-J	
R228	A1020-0790	R-CHIP:RH 1/8 BS 273-J 20X12	
R229	A1020-0343	R-CHIP:RH 1/8 BS 105-J 20X12 RD3A2BY105J	
R230	A1020-0791	R-CHIP:RH 1/8 BS 274-J 20X12	
R232	A1020-0344	R-CHIP:RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R234	A1020-0329	R-CHIP:RH 1/8 BS 153-J 20X12 RD3A2BY153J	
R235	A1020-0441	R-CHIP:RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R236	A1020-0791	R-CHIP:RH 1/8 BS 274-J 20X12	
R237	A1020-0321	R-CHIP:RH 1/8 BS 333-J 20X12 RD3A2BY333J	
R239	A1020-0320	R-CHIP:RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R241	A1020-0344	R-CHIP:RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R242	A1020-0323	R-CHIP:RH 1/8 BS 272-J 20X12 RD3A2BY272J	
R243	61048-177-432	R-CARBON:RD 1/8 T 432-J	
R244	61048-177-222	R-CARBON:RD 1/8 T 222-J	
R247	A1020-0789	R-CHIP:RH 1/8 BS 271-J 20X12	
R251	A1020-0774	R-CHIP:RH 1/8 BS 123-J 20X12	
R254	61048-177-102	R-CARBON:RD 1/8 T 102-J	
R255	61048-177-303	R-CARBON:RD 1/8 T 303-J	
R256	61048-177-433	R-CARBON:RD 1/8 T 433-J	
R258	A1020-0449	R-CHIP:RH 1/8 BS 000-J 20X12 CROSS CONDUCTOR RD3A2	
R259	61048-177-102	R-CARBON:RD 1/8 T 102-J	
R260	61048-177-563	R-CARBON:RD 1/8 T 563-J	
R262	61048-177-103	R-CARBON:RD 1/8 T 103-J	
W330	61048-177-222	R-CARBON:RD 1/8 T 222-J	
VIDEO PARTS			
C305	A1020-0449	R-CHIP:RH 1/8 BS 000-J 20X12 CROSS CONDUCTOR RD3A2	
C307	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C308	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C310	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C311	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C312	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C314	61637-208-010	C-ELEC:CEAP 50V 1M SA(5X11)	
C315	B1104-0625	C-ELEC:CE 04 -40/85 16V T 010-M 15SILM	
C316	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C319	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C320	A1100-0442	C-CERAMIC,CHIP:CC OB SL 50V 100-C 20X12 UCN053SL10	
C321	61407-117-154	C-CERAMIC,AXIAL:CAX B TAPG 50V 151K-T	
C322	A1100-0970	C-CERAMIC,CHIP:CK OB Y5P 50V 820-K 20X12 UCN053A82	
C323	A1100-0972	C-CERAMIC,CHIP:CC OB SL 50V 270-J 20X12 UCN053SL27	
C324	A1100-0440	C-CERAMIC,CHIP:CK OB SL 50V 120-J 20X12 UCN053SL1	
C326	A1100-0445	C-CERAMIC,CHIP:CK OB SL 50V 470-J 20X12 UCN053SL47	
C327	61407-117-184	C-CERAMIC,AXIAL:CAX B TAPG 50V 181-K	
C328	A1100-0958	C-CERAMIC,CHIP:CK OB Y5V 16V 103-Z 20X12 EON053F10	
C329	A1100-0532	C-CERAMIC,CHIP:CC OB SL 50V 220-J 20X12 UCN053SL22	
C330	A1100-0972	C-CERAMIC,CHIP:CC OB SL 50V 270-J 20X12 UCN053SL27	
C333	61453-131-391	C-CERAMIC,CHIP:0805 5A 391JAT MA	
C334	A1100-0446	C-CERAMIC,CHIP:CK OB SL 50V 050-C 20X12/UCN053 SLO	
C335	61453-130-223	C-CERAMIC,CHIP:0805 5C 223KAT MA	
C336	A1104-0611	C-ELEC:CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C338	61407-117-104	C-CERAMIC,AXIAL:CAX Y TAPG 16V 103N-T	
C339	A1100-0960	C-CERAMIC,CHIP:CK OB Y5V 16V 223-Z 20X12 EON153F22	
C340	A1104-0612	C-ELEC:CE 04 -40/85 10V T 470-M SRE 6.3X5 47UF	
C341	A1104-0611	C-ELEC:CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C342	A1100-0446	C-CERAMIC,CHIP:CK OB SL 50V 050-C 20X12/UCN053 SLO	

Loca.No	Part No	Description & Specification	Remark
C343	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C344	61407-117-228	C-CERAMIC;AXIAL;CK OA F 25V 2232/F 25V 2232T	
C345	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EGN153F22	
C346	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EGN153F22	
C348	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C349	A1100-0135	C-CERAMIC;CHIP;CK 73 X7R 50V T 473-K C2012 21B473K	
C350	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EGN153F22	
C351	A1104-0612	C-ELEC;CE 04 -40/85 10V T 470-M SRE 6.3X5 47UF	
C352	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C353	A1100-0135	C-CERAMIC;CHIP;CK 73 X7R 50V T 473-K C2012 21B473K	
C354	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C355	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EGN153F22	
C356	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C357	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C358	A1100-0135	C-CERAMIC;CHIP;CK 73 X7R 50V T 473-K C2012 21B473K	
C359	61407-117-104	C-CERAMIC;AXIAL;CAX Y TAPG 16V 103N-T	
C360	A1104-0611	C-ELEC;CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C361	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C362	61454-139-201	C-CERAMIC;CHIP;0805 5A 201 JAT MA	
C364	A1100-0960	C-CERAMIC;CHIP;CK OB Y5V 16V 223-Z 20X12 EGN153F22	
C365	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C366	A1104-0611	C-ELEC;CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C367	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C368	61407-117-104	C-CERAMIC;AXIAL;CAX Y TAPG 16V 103N-T	
C369	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C370	A1104-0611	C-ELEC;CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C371	A1100-0972	C-CERAMIC;CHIP;CC OB SL 50V 270-J 20X12 UCN053SL27	
C374	A1104-0608	C-ELEC;CE 04 -25/85 50V T 010-M SRE 3X5	
C375	61407-117-101	C-CERAMIC;AXIAL;UPO50F 104Z	
C376	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C377	A1104-0612	C-ELEC;CE 04 -40/85 10V T 470-M SRE 6.3X5 47UF	
C380	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C381	61453-130-121	C-CERAMIC;CHIP;0805 5A 121JAT MA	
C382	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C387	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C388	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C390	A1100-0447	C-CERAMIC;CHIP;CK OB A 50V 121-K 20X12 UCN053 A12	
C391	A1100-0507	C-CERAMIC;CHIP;CC OB SL 50V 180-J 20X12 UCN053SL18	
C392	61407-117-104	C-CERAMIC;AXIAL;CAX Y TAPG 16V 103N-T	
C393	61407-117-104	C-CERAMIC;AXIAL;CAX Y TAPG 16V 103N-T	
C394	A1100-0958	C-CERAMIC;CHIP;CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C396	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C399	61453-131-821	C-CERAMIC;CHIP;0805 5A 820JAT MA	
QK301	B6010-0851	CONNECTOR-WAFER;W323-HLEMO4S-1 BLK	
D302	62169-406-482	DIODE;1N4148 SAMSUNG	
D304	62169-406-482	DIODE;1N4148 SAMSUNG	
D307	62169-406-482	DIODE;1N4148 SAMSUNG	
D318	62169-406-482	DIODE;1N4148 SAMSUNG	
D350	62169-406-482	DIODE;1N4148 SAMSUNG	
D353	62169-406-482	DIODE;1N4148 SAMSUNG	
IC301	B4012-0165	IC-LINEAR;LA7411 DIP PRE-AMP	
IC302	B4012-0276	IC-LINEAR;LA7439 DIP	
IC303	B4012-0277	IC-LINEAR;LC89970 DIP	
L302	62427-812-271	COIL-PEAKING;EL0606RA 270uH-J	
L303	62427-020-680	COIL-PEAKING;AXIAL;LAL02TB 680J TAPG	
L304	62427-020-220	COIL-PEAKING;AXIAL;LAL02TB 220J TAPG	
L305	62427-020-330	COIL-PEAKING;AXIAL;LAL02TB 330J TAPG	
L307	62427-020-560	COIL-PEAKING;AXIAL;LAL02TB 560J TAPG	
L308	62427-020-150	COIL-PEAKING;AXIAL;LAL02TB 150J TAPG	
L309	62427-812-331	COIL-PEAKING;EL0606RA 330uH-J	
L314	62427-020-330	COIL-PEAKING;AXIAL;LAL02TB 330J TAPG	
L315	62427-812-101	COIL-PEAKING;EL0606RA 100uH-J	
L316	62429-833-101	COIL-PEAKING;AXIAL;BAL04ST 101K	
L320	62427-020-151	COIL-PEAKING;AXIAL;LAL02TB 151J TAPG	

Loca.No	Part No	Description & Specification	Remark
L321	62427-020-150	COIL-PEAKING;AXIAL;LAL02TB 150J TAPG	
L322	62427-020-150	COIL-PEAKING;AXIAL;LAL02TB 150J TAPG	
L350	62427-010-229	COIL-PEAKING;AXIAL;LAL02 TB 2.2uH TAPG	
L396	62429-833-101	COIL-PEAKING;AXIAL;BAL04ST 101K	
Q301	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q302	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q303	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q304	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q307	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q308	62137-701-013	TRANSISTOR;KSR 1004 TAPG	
Q319	62137-701-020	TRANSISTOR;KSR 2001 TAPG	
Q323	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q324	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q325	62129-101-130	TRANSISTOR;CHIP;KSR 2102 (REEL)	
Q326	62129-101-173	TRANSISTOR;CHIP;KSR 1104 (REEL)	
Q327	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q328	62129-101-080	TRANSISTOR;CHIP;KSA 812-GI (REEL)	
R301	A1020-0782	R-CHIP;RH 1/8 BS 203-J 20X12	
R304	A1020-0544	R-CHIP;RH 1/8 CS 104-J 20X12 R03A2BY104J	
R305	61048-177-563	R-CARBON;RD 1/8 T 563-J	
R307	A1020-0455	R-CHIP;RH 1/8 BS 152-J 20X12 R03A2BY152J	
R309	A1020-0455	R-CHIP;RH 1/8 BS 152-J 20X12 R03A2BY152J	
R310	A1020-0785	R-CHIP;RH 1/8 BS 241-J 20X12	
R311	A1020-0455	R-CHIP;RH 1/8 BS 152-J 20X12 R03A2BY152J	
R312	A1020-0789	R-CHIP;RH 1/8 BS 271-J 20X12	
R314	A1020-0337	R-CHIP;RH 1/8 BS 821-J 20X12 R03A2BY821J	
R315	A1020-0331	R-CHIP;RH 1/8 BS 221-J 20X12 R03A2BY221J	
R316	A1020-0774	R-CHIP;RH 1/8 BS 123-J 20X12	
R317	A1020-0334	R-CHIP;RH 1/8 BS 391-J 20X12 R03A2BY391J	
R318	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 R03A2BY102J	
R321	A1020-0336	R-CHIP;RH 1/8 BS 561-J 20X12 R03A2BY561J	
R323	A1020-0334	R-CHIP;RH 1/8 BS 391-J 20X12 R03A2BY391J	
R324	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R325	A1020-0323	R-CHIP;RH 1/8 BS 272-J 20X12 R03A2BY272J	
R326	A1020-0723	R-CHIP;RH 1/8 BS 681-J 20X12 R03A2BY681J	
R327	A1020-0449	R-CHIP;RH 1/8 BS 000-J 20X12 CROSS CONDUCTOR R03A2	
R328	A1020-0790	R-CHIP;RH 1/8 BS 273-J 20X12	
R329	A1020-0431	R-CHIP;RH 1/8 BS 223-J 20X12 R03A2BY223J	
R330	A1020-0441	R-CHIP;RH 1/8 BS 103-J 20X12 R03A2BY103J	
R331	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R335	61048-177-152	R-CARBON;RD 1/8 T 152-J	
R336	A1020-0325	R-CHIP;RH 1/8 BS 182-J 20X12 R03A2BY182J	
R341	A1020-0339	R-CHIP;RH 1/8 BS 822-J 20X12 R03A2BY822J	
R342	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 R03A2BY102J	
R344	A1020-0325	R-CHIP;RH 1/8 BS 182-J 20X12 R03A2BY182J	
R345	A1020-0455	R-CHIP;RH 1/8 BS 152-J 20X12 R03A2BY152J	
R346	A1020-0455	R-CHIP;RH 1/8 BS 152-J 20X12 R03A2BY152J	
R349	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 R03A2BY102J	
R350	A1020-0333	R-CHIP;RH 1/8 BS 823-J 20X12 R03A2BY823J	
R351	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 R03A2BY102J	
R352	A1020-0786	R-CHIP;RH 1/8 BS 242-J 20X12	
R354	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 R03A2BY102J	
R366	A1020-0338	R-CHIP;RH 1/8 BS 511-J 20X12 R03A2BY511J	
R369	61048-177-561	R-CARBON;RD 1/8 T 561-J	
R370	A1020-0336	R-CHIP;RH 1/8 BS 561-J 20X12 R03A2BY561J	
R371	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 R03A2BY562J	
R372	61048-177-242	R-CARBON;RM 1/8 T 242-J	
R373	A1020-0782	R-CHIP;RH 1/8 BS 203-J 20X12	
R374	A1020-0782	R-CHIP;RH 1/8 BS 203-J 20X12	
R375	A1020-0449	R-CHIP;RH 1/8 BS 000-J 20X12 CROSS CONDUCTOR R03A2	
R376	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 R03A2BY102J	
R377	A1020-0337	R-CHIP;RH 1/8 BS 821-J 20X12 R03A2BY821J	
R378	A1020-0790	R-CHIP;RH 1/8 BS 273-J 20X12	
R379	A1020-0331	R-CHIP;RH 1/8 BS 221-J 20X12 R03A2BY221J	

Loca.No	Part No	Description & Specification	Remark
R380	A1020-0537	R-CHIP; RH 1/8 BS 202-J 20X12 RD3A2BY202J	
R381	61048-177-102	R-CARBON; RD 1/8 T 102-J	
R382	A1020-0317	R-CHIP; RH 1/8 BS 392-J 20X12 RD3A2BY392J	
R383	61048-177-102	R-CARBON; RD 1/8 T 102-J	
R384	A1020-0320	R-CHIP; RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R385	A1020-0804	R-CHIP; RH 1/8 BS 512-J 20X12	
R386	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
X301	B1280-0169	CRYSTAL; 4.433619MHZ HC-49/U-S 15PPM SERIES TYPE	
TUNER PARTS			
C401	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C402	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C403	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C404	A1100-0961	C-CERAMIC; CHIP; CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C405	61507-121-511	C-POLYESTER; C0921M TAPG 50V 223-J	
C406	61637-208-229	C-ELEC; CEAP 50V 2.2M SA (5X11)	
C407	61617-405-470	C-ELECTROLYTIC; CE04W TAPG 25V 47M(RSS 6.3X7)	
C408	61637-208-229	C-ELEC; CEAP 50V 2.2M SA (5X11)	
C409	A1100-0960	C-CERAMIC; CHIP; CK OB Y5V 16V 223-Z 20X12 EGN153F22	
C410	61637-204-470	C-ELEC; CEAP 16V 47M SA(5X11)	
C411	61637-208-479	C-ELEC; CEAP 50V 4.7M SA(5X11)	
C412	A1100-0961	C-CERAMIC; CHIP; CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C414	61453-131-101	C-CERAMIC; CHIP; 0805 SA 101JAT MA	
C415	A1104-0611	C-ELEC; CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C416	A1104-0611	C-ELEC; CE 04 -40/85 16V T 100-M SRE 3.5X5 10UF	
C417	61617-405-470	C-ELECTROLYTIC; CE04W TAPG 25V 47M(RSS 6.3X7)	
C418	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C419	A1100-0961	C-CERAMIC; CHIP; CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C420	61407-117-101	C-CERAMIC; AXIAL; UP050F 104Z	
C422	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C423	61637-508-470	C-ELEC; CEAP 50V 47M SG(6.3X11)	
C424	B1102-0125	C-FILM; CO 982 P 50V T 104-J 40/85 EGV1H104JZ3	
C425	B1102-0125	C-FILM; CO 982 P 50V T 104-J 40/85 EGV1H104JZ3	
C426	B1102-0125	C-FILM; CO 982 P 50V T 104-J 40/85 EGV1H104JZ3	
C427	B1102-0125	C-FILM; CO 982 P 50V T 104-J 40/85 EGV1H104JZ3	
C428	61407-117-104	C-CERAMIC; AXIAL; CAX Y TAPG 16V 103N-T	
C429	61637-204-470	C-ELEC; CEAP 16V 47M SA(5X11)	
C430	A1100-0961	C-CERAMIC; CHIP; CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C431	A1100-0444	C-CERAMIC; CHIP; CK OB Y 25V 102-M 20X12 TCN053Y102M	
C432	61407-117-101	C-CERAMIC; AXIAL; UP050F 104Z	
C433	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C434	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	
C450	61407-117-101	C-CERAMIC; AXIAL; UP050F 104Z	
C451	A1100-0433	C-CERAMIC; CHIP; CK OB A 50V 101-K 20X12/UCN053 A101	
D401	62169-406-482	DICODE; IN4148 SAMSUNG	
FL401	B1245-0034	FILTER-SAW; TSF5316 PAL-X VIF/SIF ST	
FL402	B1243-0064	FILTER-CERAMIC; BP 5.5MHZ EFC75R5YSSC	
FL403	B1243-0062	FILTER-CERAMIC; TR 5.5MHZ EFCN55504A	
IC401	B4012-0046	IC-LINEAR; TDA9800 DIP NEG DEMOD	
IC402	62109-201-281	IC; KA7809	
IC403	62119-401-370	IC; LA7920	
IC404	62119-501-561	IC-L; KA33V TAPG	
J401	66449-0002-00	CABLE-1F; SD SO-C1238-3 L30	
L401	62427-020-010	COIL PEAKING; AXIAL; LAL02TB 1R0J TAPG	
L402	62427-812-139	COIL-PEAKING; EL0608PA 1.3UH-K	
L403	62427-812-150	COIL-PEAKING; EL0608PA 15UH-J	
L404	66639-0003-00	FERRITE-BEAD INDUCTOR; NI-ZN FERRITE K150 B13857	
Q401	62137-702-010	TRANSISTOR; KTC 3197-AT(TAPG)	
Q402	62137-302-740	TRANSISTOR; KSC 945-Y TAPG	
Q403	62197-500-441	TRANSISTOR; KSC 945-Y TAPG	
Q404	62137-701-012	TRANSISTOR; KSR 1003 TAPG	
Q405	62147-401-835	TRANSISTOR; KSA 928A-Y TAPG	
Q408	62137-302-740	TRANSISTOR; KSC 945-Y TAPG	
R401	61048-177-101	R-CARBON; RD 1/8 T 101-J	
R402	61048-177-271	R-CARBON; RD 1/8 T 271-J	

Loca.No	Part No	Description & Specification	Remark
R403	A1020-0327	R-CHIP; RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R404	A1020-0455	R-CHIP; RH 1/8 BS 152-J 20X12 RD3A2BY152J	
R405	A1020-0334	R-CHIP; RH 1/8 BS 391-J 20X12 RD3A2BY391J	
R406	61048-177-470	R-CARBON; RD 1/8 T 470-J	
R408	A1020-0449	R-CHIP; RH 1/8 BS 000-J 20X12 CROSS CONDUCTOR RD3A2	
R409	A1020-0543	R-CHIP; RH 1/8 CS 101-J 20X12 RD3A2BY101J	
R410	A1020-0339	R-CHIP; RH 1/8 BS 822-J 20X12 RD3A2BY822J	
R411	A1020-0323	R-CHIP; RH 1/8 BS 272-J 20X12 RD3A2BY272J	
R412	A1020-0322	R-CHIP; RH 1/8 BS 222-J 20X12 RD3A2BY222J	
R414	A1020-0537	R-CHIP; RH 1/8 BS 202-J 20X12 RD3A2BY202J	
R415	61048-177-331	R-CARBON; RD 1/8 T 331-J	
R416	61048-177-241	R-CARBON; RD 1/8 T 241-J	
R418	61048-177-433	R-CARBON; RD 1/8 T 433-J	
R419	A1020-0336	R-CHIP; RH 1/8 BS 561-J 20X12 RD3A2BY561J	
R420	A1020-0431	R-CHIP; RH 1/8 BS 223-J 20X12 RD3A2BY223J	
R421	A1020-0431	R-CHIP; RH 1/8 BS 223-J 20X12 RD3A2BY223J	
R422	A1020-0777	R-CHIP; RH 1/8 BS 151-J 20X12	
R423	A1020-0777	R-CHIP; RH 1/8 BS 151-J 20X12	
R424	A1020-0331	R-CHIP; RH 1/8 BS 221-J 20X12 RD3A2BY221J	
R426	A1006-0799	R-METAL FILM; FM 1/4 T 122-J SFR25	
R427	61048-177-223	R-CARBON; RD 1/8 T 223-J	
R428	61048-177-103	R-CARBON; RD 1/8 T 103-J	
R429	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R430	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R431	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R432	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R433	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R434	61048-177-335	R-CARBON; RD 1/8 T 335-J	
R435	A1020-0834	R-CHIP; RH 1/8 BS 335-J 20X12	
R436	A1020-0834	R-CHIP; RH 1/8 BS 335-J 20X12	
R437	A1020-0333	R-CHIP; RH 1/8 BS 823-J 20X12 RD3A2BY823J	
R438	A1020-0333	R-CHIP; RH 1/8 BS 823-J 20X12 RD3A2BY823J	
R439	A1020-0431	R-CHIP; RH 1/8 BS 223-J 20X12 RD3A2BY223J	
R440	A1020-0431	R-CHIP; RH 1/8 BS 223-J 20X12 RD3A2BY223J	
R441	A1020-0320	R-CHIP; RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R442	61048-177-152	R-CARBON; RD 1/8 T 152-J	
R443	A1006-0804	R-METAL FILM; FM 1/4 T 221-J SFR25	
R444	61048-177-102	R-CARBON; RD 1/8 T 102-J	
R445	61048-177-222	R-CARBON; RD 1/8 T 222-J	
R446	A1006-0816	R-METAL FILM; FM 1/4 T 561-J SFR25	
R447	A1006-0816	R-METAL FILM; FM 1/4 T 561-J SFR25	
R450	A1020-0441	R-CHIP; RH 1/8 BS 103-J 20X12 RD3A2BY103J	
TL401	A1197-0004	TRANS-DET; 9MM OUH BLK 8PF 77.5MHZ M7T1 STICK	
U401	67189-0036-00	CONVERTER-RF; MOLK6D955A PAL G	
U402	B1292-0063	TUNER; TEKE4-092A 104CH PAL VS	
VR401	B1054-0230	VR-SEMI; EVN-CYAA03-BE4 22KB CARBON T TOP 2.5W 50V	
ZD401	62169-403-821	DICODE; ZENER; MTZ 5.1B	
I/O PARTS (1 SCART ONLY)			
C4301	61637-204-100	C-ELEC; CEAP 16V 10M SA(5X11)	
C4303	61407-117-103	C-CERAMIC; AXIAL; CAX B TAPG 101K-T	
C4304	61453-131-101	C-CERAMIC; CHIP; 0805 SA 101JAT MA	
C4309	61637-204-470	C-ELEC; CEAP 16V 47M SA(5X11)	
C4310	A1100-0970	C-CERAMIC; CHIP; CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4311	61617-404-101	C-ELEC; CEAP 16V 100M RSS(6.3X7)	
C4312	A1100-0433	C-CERAMIC; CHIP; CK OB A 50V 101-K 20X12/UCN053 A101	
C4314	A1100-0970	C-CERAMIC; CHIP; CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4315	61637-502-471	C-ELEC; CEAP 6.3V 470M SG(8X11.5)	
C4316	A1100-0970	C-CERAMIC; CHIP; CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4317	61407-117-103	C-CERAMIC; AXIAL; CAX B TAPG 101K-T	
C4318	A1100-0444	C-CERAMIC; CHIP; CK OB Y 25V 102-M 20X12 TCN053Y102M	
C4319	61637-204-100	C-ELEC; CEAP 16V 10M SA(5X11)	
C4320	61637-204-100	C-ELEC; CEAP 16V 10M SA(5X11)	
C4321	61637-204-100	C-ELEC; CEAP 16V 10M SA(5X11)	
C4322	A1100-0958	C-CERAMIC; CHIP; CK OB Y5V 16V 103-Z 20X12 EGN053F10	

Loca.No	Part No	Description & Specification	Remark
C4325	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C4326	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C4330	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4331	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C4332	A1100-0961	C-CERAMIC,CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C4334	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C4335	61407-117-102	C-CERAMIC,AXIAL;CAX B TAPG 102K-T	
C4336	A1100-0961	C-CERAMIC,CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C4341	A1100-0961	C-CERAMIC,CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C4344	A1100-0438	C-CERAMIC,CHIP;CK OB A 50V 680-K 20X12 UCN053 A68	
D4301	62169-406-482	DIODE;1N4148 SAMSUNG	
D4303	62169-406-482	DIODE;1N4148 SAMSUNG	
D4307	62169-406-482	DIODE;1N4148 SAMSUNG	
D4310	62169-406-482	DIODE;1N4148 SAMSUNG	
D4311	62169-406-482	DIODE;1N4148 SAMSUNG	
IC4302	62119-401-310	IC;KA8403	
IC4303	62119-401-310	IC;KA8403	
JC4301	A3040-0189	JACK-SCART;DSR-9408 21P BLK	
L4301	62427-020-150	COIL PEAKING,AXIAL;LAL02TB 150J TAPG	
L4302	62427-020-150	COIL PEAKING,AXIAL;LAL02TB 150J TAPG	
L4303	62427-020-150	COIL PEAKING,AXIAL;LAL02TB 150J TAPG	
Q4301	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4307	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4310	62137-701-020	TRANSISTOR;KSR 2001 TAPG	
Q4313	62137-701-013	TRANSISTOR;KSR 1004 TAPG	
R4301	61048-177-153	R-CARBON;RD 1/8 T 153-J	
R4312	61048-177-561	R-CARBON;RD 1/8 T 561-J	
R4313	61048-177-152	R-CARBON;RD 1/8 T 152-J	
R4314	A1006-0817	R-METAL FILM;FM 1/4 T 680-J SFR25	
R4316	61048-177-750	R-CARBON;RD 1/8 T 750-J	
R4317	61048-177-681	R-CARBON;RD 1/8 T 681-J	
R4318	61048-177-222	R-CARBON;RD 1/8 T 222-J	
R4319	A1006-0818	R-METAL FILM;FM 1/4 T 681-J SFR25	
R4322	61048-177-821	R-CARBON;RD 1/8 T 821-J	
R4330	A1006-0818	R-METAL FILM;FM 1/4 T 681-J SFR25	
R4331	61048-177-562	R-CARBON;RD 1/8 T 562-J	
R4335	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R4336	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R4340	A1006-0808	R-METAL FILM;FM 1/4 T 331-J SFR25	
W282	61048-177-102	R-CARBON;RD 1/8 T 102-J	
ZD4301	62169-403-826	DIODE-ZENER;MTZ 12B	
I/O PARTS (2 SCART ONLY)			
C4301	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4303	61407-117-103	C-CERAMIC,AXIAL;CAX B TAPG 101K-T	
C4305	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4306	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4307	61407-117-103	C-CERAMIC,AXIAL;CAX B TAPG 101K-T	
C4308	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C4309	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C4310	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4311	61617-404-101	C-ELEC;CEAP 16V 100M RSS(6.3X7)	
C4312	A1100-0433	C-CERAMIC,CHIP;CK OB A 50V 101-K 20X12/UCN053 A101	
C4314	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4315	61637-502-471	C-ELEC;CEAP 6.3V 470M SG(8X11.5)	
C4316	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12 UCN053A82	
C4317	61407-117-103	C-CERAMIC,AXIAL;CAX B TAPG 101K-T	
C4318	A1100-0444	C-CERAMIC,CHIP;CK OB Y 25V 102-M 20X12 TCN053Y102M	
C4319	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4320	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4321	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4322	A1100-0958	C-CERAMIC,CHIP;CK OB Y5V 16V 103-Z 20X12 ECN053F10	
C4323	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4324	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4325	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	

Loca.No	Part No	Description & Specification	Remark
C4326	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C4328	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C4329	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C4330	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C4331	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C4332	A1100-0961	C-CERAMIC,CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C4333	A1100-0958	C-CERAMIC,CHIP;CK OB Y5V 16V 103-Z 20X12 ECN053F10	
C4334	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C4335	61407-117-102	C-CERAMIC,AXIAL;CAX B TAPG 102K-T	
C4340	61407-117-101	C-CERAMIC,AXIAL;LP050F 104Z	
C4344	A1100-0438	C-CERAMIC,CHIP;CK OB A 50V 680-K 20X12 UCN053 A68	
D4301	62169-406-482	DIODE;1N4148 SAMSUNG	
D4302	62169-406-482	DIODE;1N4148 SAMSUNG	
D4303	62169-406-482	DIODE;1N4148 SAMSUNG	
D4304	62169-406-482	DIODE;1N4148 SAMSUNG	
D4305	62169-406-482	DIODE;1N4148 SAMSUNG	
D4306	62169-406-482	DIODE;1N4148 SAMSUNG	
D4308	62169-406-482	DIODE;1N4148 SAMSUNG	
D4309	62169-406-482	DIODE;1N4148 SAMSUNG	
D4310	62169-406-482	DIODE;1N4148 SAMSUNG	
D4311	62169-406-482	DIODE;1N4148 SAMSUNG	
IC4301	A4012-0288	IC-LINEAR;KA8119 DIP	
JC4301	A3040-0148	JACK-SCART;DSR-9103(S) 42P BLK/BLU	
L4301	62427-020-150	COIL PEAKING,AXIAL;LAL02TB 150J TAPG	
L4302	62427-020-150	COIL PEAKING,AXIAL;LAL02TB 150J TAPG	
L4303	62427-020-150	COIL PEAKING,AXIAL;LAL02TB 150J TAPG	
Q4301	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4302	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q4303	62137-701-013	TRANSISTOR;KSR 1004 TAPG	
Q4305	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4306	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4307	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4308	62137-103-380	TRANSISTOR;KSA 733-Y TAPG	
Q4310	62137-701-020	TRANSISTOR;KSR 2001 TAPG	
Q4313	62137-701-013	TRANSISTOR;KSR 1004 TAPG	
Q4320	62137-302-740	TRANSISTOR;KSC 945-Y TAPG	
Q4321	62129-101-080	TRANSISTOR,CHIP;KSA 812-G(REEL)	
R4301	61048-177-563	R-CARBON;RD 1/8 T 563-J	
R4302	61048-177-221	R-CARBON;RD 1/8 T 221-J	
R4303	61048-177-221	R-CARBON;RD 1/8 T 221-J	
R4304	61048-177-471	R-CARBON;RD 1/8 T 471-J	
R4305	61048-177-750	R-CARBON;RD 1/8 T 750-J	
R4306	61048-177-750	R-CARBON;RD 1/8 T 750-J	
R4310	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R4311	61048-177-271	R-CARBON;RD 1/8 T 271-J	
R4312	61048-177-561	R-CARBON;RD 1/8 T 561-J	
R4313	61048-177-152	R-CARBON;RD 1/8 T 152-J	
R4314	A1006-0817	R-METAL FILM;FM 1/4 T 680-J SFR25	
R4316	61048-177-750	R-CARBON;RD 1/8 T 750-J	
R4317	61048-177-471	R-CARBON;RD 1/8 T 471-J	
R4318	61048-177-152	R-CARBON;RD 1/8 T 152-J	
R4319	A1006-0818	R-METAL FILM;FM 1/4 T 681-J SFR25	
R4320	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R4321	61048-177-103	R-CARBON;RD 1/8 T 103-J	
R4322	61048-177-821	R-CARBON;RD 1/8 T 821-J	
R4323	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R4324	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R4327	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R4328	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R4330	A1006-0818	R-METAL FILM;FM 1/4 T 681-J SFR25	
R4331	61048-177-562	R-CARBON;RD 1/8 T 562-J	
R4335	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R4336	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R4340	A1006-0811	R-METAL FILM;FM 1/4 T 331-J SFR25	

Loca.No	Part No	Description & Specification	Remark
R4341 W282 ZD4301	A1020-0320 61048-177-102 62169-403-826	R-CHIP;RH 1/8 BS 102-J 20X12 RD3A2BY102J R-CARBON;RD 1/8 T 102-J DIODE-ZENER;MTZ 12B	
AUDIO PARTS			
C501	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C502	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C503	61453-131-103	C-CERAMIC;CHIP;0805 5C 103KAT MA	
C505	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C506	61637-208-339	C-ELEC;CEAP 50V 3.3M SA(5X11)	
C507	61637-208-479	C-ELEC;CEAP 50V 4.7M SA(5X11)	
C508	61454-142-123	C-CERAMIC;CHIP;0805 5C 123KAT MA	
C509	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C510	61637-208-010	C-ELEC;CEAP 50V 1M SA(5X11)	
C511	61637-204-330	C-ELEC;CEAP 16V 33M SA(5X11)	
C512	61637-208-010	C-ELEC;CEAP 50V 1M SA(5X11)	
C513	61453-131-103	C-CERAMIC;CHIP;0805 5C 103KAT MA	
C514	61453-131-103	C-CERAMIC;CHIP;0805 5C 103KAT MA	
C515	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C516	A1100-0024	C-CERAMIC;CHIP;CK 73 X7R 50V T 822-K C2012 822	
C517	A1100-0869	C-CERAMIC;CHIP;CK 73 X7R 50V T 682-K C2012 CL21B68	
C518	A1100-0925	C-CERAMIC;CHIP;CG OB X7S 12V 682-M 20X12 BCN053Y68	
C524	61454-142-122	C-CERAMIC;CHIP;0805 5C 122KAT MA	
C527	B1102-0258	C-FILM;CQ 922 M 100V T 473-J ECGE1473JF3	
C528	61637-204-470	C-ELEC;CEAP 16V 47M SA(5X11)	
C530	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C531	A1100-0433	C-CERAMIC;CHIP;CK OB A 50V 101-K 20X12/UCN053 A101	
CN501	B6010-0861	CONNECTOR-WAFER;W323-HLEMO6S-1 BLK	
CN502	B6010-0436	CONNECTOR-WAFER;TMC-ED2X-A1 BLK STICK	
D501	62169-406-482	DIODE;1N4148 SAMSUNG	
FL501	A1208-0004	TRANS-OSC;126CN-KS442321YCT 6.3X5MM 920UH BIAS BLK	
IC501	B4012-0273	IC-LINEAR;LA7286 DIP	
L501	62429-833-101	COIL-PEAKING AXIAL;BAL04ST 101K	
L502	62427-813-153	COIL-PEAKING;EL0607PA 15mH-J	
Q501	62137-702-020	TRANSISTOR;KSC 1008-Y TAPG	
Q506	62137-701-013	TRANSISTOR;KSR 1004 TAPG	
R501	61048-177-131	R-CARBON;RD 1/8 T 131-J	
R503	A1020-0793	R-CHIP;RH 1/8 BS 334-J 20X12	
R504	A1020-0441	R-CHIP;RH 1/8 BS 103-J 20X12 RD3A2BY103J	
R505	A1020-0317	R-CHIP;RH 1/8 BS 392-J 20X12 RD3A2BY392J	
R506	61048-177-225	R-CARBON;RD 1/8 T 225-J	
R507	61048-177-433	R-CARBON;RD 1/8 T 433-J	
R508	61048-177-682	R-CARBON;RD 1/8 T 682-J	
R509	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R510	A1020-0322	R-CHIP;RH 1/8 BS 222-J 20X12 RD3A2BY222J	
R511	A1020-0327	R-CHIP;RH 1/8 BS 562-J 20X12 RD3A2BY562J	
R512	A1020-0537	R-CHIP;RH 1/8 BS 202-J 20X12 RD3A2BY202J	
R515	A1020-0825	R-CHIP;RH 1/8 BS 473-J 20X12	
R516	61048-177-479	R-CARBON;RD 1/8 T 479-J	
R517	A1020-0335	R-CHIP;RH 1/8 BS 472-J 20X12 RD3A2BY472J	
R518	61048-177-470	R-CARBON;RD 1/8 T 470-J	
R519	61048-177-181	R-CARBON;RD 1/8 T 181-J	
R520	A1020-0431	R-CHIP;RH 1/8 BS 223-J 20X12 RD3A2BY223J	
R528	A1020-0344	R-CHIP;RH 1/8 BS 122-J 20X12 RD3A2BY122J	
R532	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 RD3A2BY102J	
V.P.S PARTS			
C6101	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C6102	61453-130-151	C-CERAMIC;CHIP;0805 5A 151JAT MA	
C6103	61453-130-333	C-CERAMIC;CHIP;0805 5C 333MAT MA	
IC6101	62119-103-700	IC;SDA5642-5 DIP VPS	
R6101	61048-177-101	R-CARBON;RD 1/8 T 101-J	
R6102	61048-177-101	R-CARBON;RD 1/8 T 101-J	
R6103	A1020-0544	R-CHIP;RH 1/8 CS 104-J 20X12 RD3A2BY104J	
R6106	A1020-0343	R-CHIP;RH 1/8 BS 105-J 20X12 RD3A2BY105J	

Loca.No	Part No	Description & Specification	Remark
R6110 R6111 R6112 R6113	A1020-0316 A1020-0322 A1020-0441 A1020-0815	R-CHIP;RH 1/8 BS 682-J 20X12 RD3A2BY682J R-CHIP;RH 1/8 BS 222-J 20X12 RD3A2BY222J R-CHIP;RH 1/8 BS 103-J 20X12 RD3A2BY103J R-CHIP;RH 1/8 BS 824-J 20X12	
P.D.C PARTS			
C6101	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C6102	61453-130-151	C-CERAMIC;CHIP;0805 5A 151JAT MA	
C6104	A1100-0928	C-CERAMIC;CHIP;CG OB X7S 25V 222-M 20X12 TON053Y22	
C6105	61453-130-333	C-CERAMIC;CHIP;0805 5C 333MAT MA	
C6106	A1104-0515	C-ELEC;CE 04 C 50V T R33-M SM-BP(S)	
IC6101	B4012-0314	IC-LINEAR;SDA5648 DIP	
R6101	61048-177-101	R-CARBON;RD 1/8 T 101-J	
R6102	61048-177-101	R-CARBON;RD 1/8 T 101-J	
R6103	A1020-0544	R-CHIP;RH 1/8 CS 104-J 20X12 RD3A2BY104J	
R6106	A1020-0343	R-CHIP;RH 1/8 BS 105-J 20X12 RD3A2BY105J	
R6107	A1020-0835	R-CHIP;RH 1/8 BS 125-J 20X12	
R6108	A1020-0835	R-CHIP;RH 1/8 BS 125-J 20X12	
R6109	A1020-0316	R-CHIP;RH 1/8 BS 682-J 20X12 RD3A2BY682J	
R6110	A1020-0316	R-CHIP;RH 1/8 BS 682-J 20X12 RD3A2BY682J	
R6111	A1020-0322	R-CHIP;RH 1/8 BS 222-J 20X12 RD3A2BY222J	
R6112	A1020-0441	R-CHIP;RH 1/8 BS 103-J 20X12 RD3A2BY103J	
O.S.D PARTS			
C901	61637-203-101	C-ELEC;CEAP 10V 100M SA(6X11)	
C902	61407-117-101	C-CERAMIC;AXIAL;UP050F 104Z	
C903	A1100-0447	C-CERAMIC;CHIP;CK OB A 50V 121-K 20X12 UCN053 A12	
C904	61637-208-010	C-ELEC;CEAP 50V 1M SA(5X11)	
C905	61407-117-680	C-CERAMIC;AXIAL;CAX SL TAPG 50V 680-J	
C906	61407-117-680	C-CERAMIC;AXIAL;CAX SL TAPG 50V 680-J	
C907	A1100-0447	C-CERAMIC;CHIP;CK OB A 50V 121-K 20X12 UCN053 A12	
C908	A1100-0447	C-CERAMIC;CHIP;CK OB A 50V 121-K 20X12 UCN053 A12	
C909	61407-117-103	C-CERAMIC;AXIAL;CAX B TAPG 101K-T	
C910	61637-208-478	C-ELEC;CEAP 50V 0.47M SA(5X11)	
C911	61407-117-561	C-CERAMIC;AXIAL;CAX B TAPG 50V 561K-T	
C913	61637-208-010	C-ELEC;CEAP 50V 1M SA(5X11)	
C914	61637-204-100	C-ELEC;CEAP 16V 10M SA(5X11)	
C915	A1100-0440	C-CERAMIC;CHIP;CK OB SL 50V 120-J 20X12 UCN053SL1	
C916	61637-203-101	C-ELEC;CEAP 10V 100M SA(6X11)	
C917	A1100-0961	C-CERAMIC;CHIP;CK 73 Y5V 25V 104-Z C2010 UMK210F10	
C918	A1100-0941	C-CERAMIC;CHIP;CC OB SL 50V 240-J 20X12 UCN053SL24	
C919	A1100-0972	C-CERAMIC;CHIP;CC OB SL 50V 270-J 20X12 UCN053SL27	
C922	61453-130-223	C-CERAMIC;CHIP;0805 5C 223KAT MA	
D901	62169-406-482	DIODE;1N4148 SAMSUNG	
D902	62169-406-482	DIODE;1N4148 SAMSUNG	
IC901	A4008-1180	IC;KS5514-03 24S DIP	
L901	62429-833-101	COIL-PEAKING AXIAL;BAL04ST 101K	
L902	62429-833-101	COIL-PEAKING AXIAL;BAL04ST 101K	
L903	62427-020-011	COIL PEAKING;AXIAL;LAL02TB 100J TAPG	
L904	62427-020-101	COIL PEAKING;AXIAL;LAL02TB 101J TAPG	
R901	61048-177-224	R-CARBON;RD 1/8 T 224-J	
R902	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R903	A1020-0543	R-CHIP;RH 1/8 CS 101-J 20X12 RD3A2BY101J	
R904	61048-177-104	R-CARBON;RD 1/8 T 104-J	
R909	A1020-0774	R-CHIP;RH 1/8 BS 123-J 20X12	
R910	A1020-0449	R-CHIP;RH 1/8 BS 000-J 20X12 CROSS CONDUCTOR RD3A2	
R930	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R931	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R932	A1020-0320	R-CHIP;RH 1/8 BS 102-J 20X12 RD3A2BY102J	
R933	61048-177-472	R-CARBON;RD 1/8 T 472-J	
R934	61048-177-472	R-CARBON;RD 1/8 T 472-J	
R935	61048-177-472	R-CARBON;RD 1/8 T 472-J	
XT901	64539-012-543	CRYSTAL;17.734475M(20ppm)	

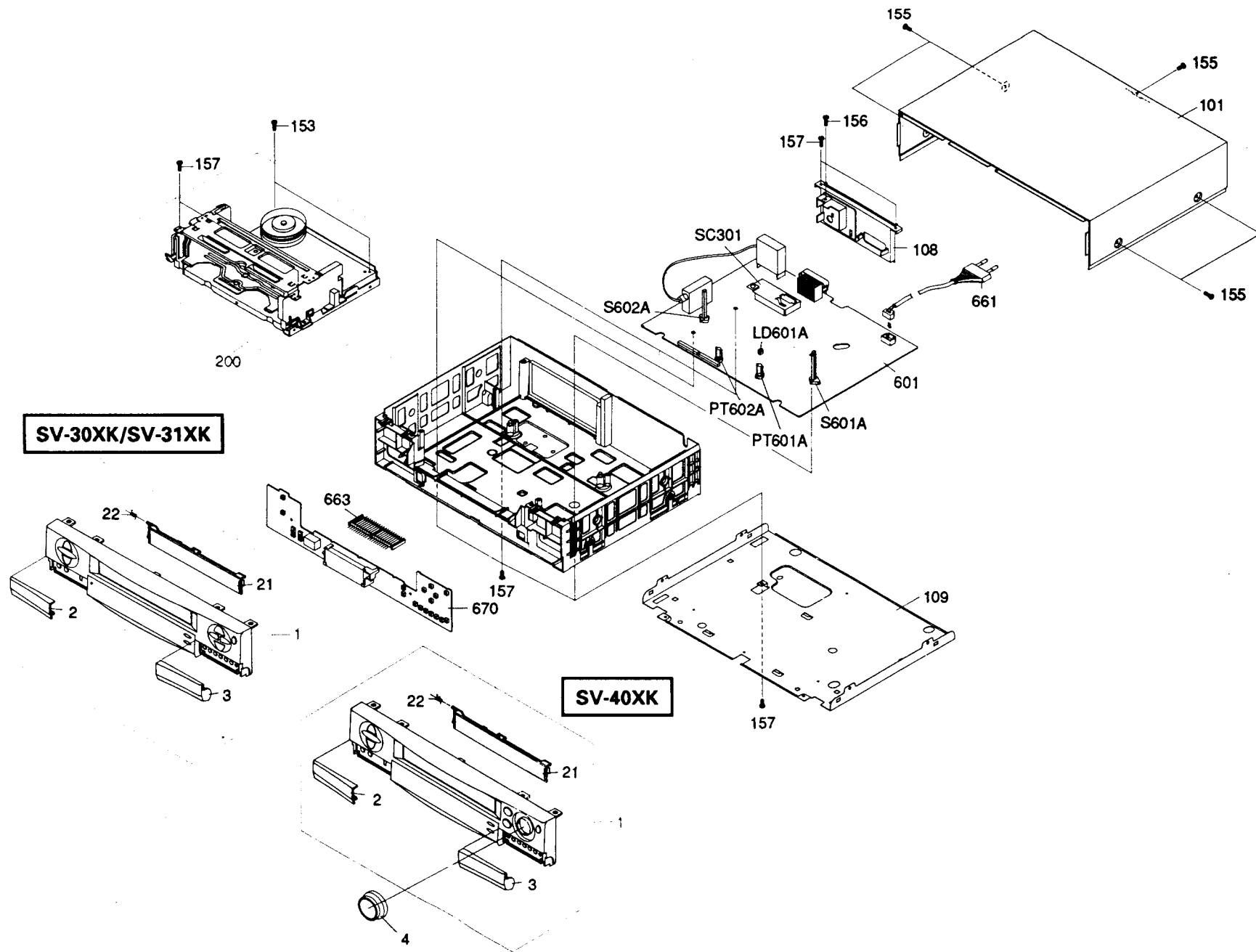
Loca.No	Part No	Description & Specification	Remark
670	69571-302-215 69571-302-225 69571-302-209	ASSY F/TIMER SV-30XK/SEG SV-31XK/SEG SV-40XK/SEG	
C701	61637-508-470	C-ELEC;CEAP 50V 47M SG(6.3X11)	
C702	61407-117-104	C-CERAMIC;AXIAL;CAX Y TAPG 16V 103N-T	
C703	61637-508-470	C-ELEC;CEAP 50V 47M SG(6.3X11)	
C704	61407-117-102	C-CERAMIC;AXIAL;CAX B TAPG 102K-T	
C714	61407-117-228	C-CERAMIC;AXIAL;CK OA F 25V 223Z/F 25V 223ZT	
C720	61637-508-470	C-ELEC;CEAP 50V 47M SG(6.3X11)	
CN701	A6010-1365	CONNECTOR-WAFER;35234-2010 WHT MOLEX	
CN702	A6010-1365	CONNECTOR-WAFER;35234-2010 WHT MOLEX	
D708	62169-406-482	DIODE;1N4148 SAMSUNG	
D709	62169-406-482	DIODE;1N4148 SAMSUNG	
D731	62169-406-482	DIODE;1N4148 SAMSUNG	
D732	62169-406-482	DIODE;1N4148 SAMSUNG	
D733	62169-406-482	DIODE;1N4148 SAMSUNG	
D734	62169-406-482	DIODE;1N4148 SAMSUNG	
D735	62169-406-482	DIODE;1N4148 SAMSUNG	
D736	62169-406-482	DIODE;1N4148 SAMSUNG	
D737	62169-406-482	DIODE;1N4148 SAMSUNG	
D738	62169-406-482	DIODE;1N4148 SAMSUNG	
D739	62169-406-482	DIODE;1N4148 SAMSUNG	
D741	62169-406-482	DIODE;1N4148 SAMSUNG	
D742	62169-406-482	DIODE;1N4148 SAMSUNG	
D743	62169-406-482	DIODE;1N4148 SAMSUNG	
D744	62169-406-482	DIODE;1N4148 SAMSUNG	
D745	62169-406-482	DIODE;1N4148 SAMSUNG	
D747	62169-406-482	DIODE;1N4148 SAMSUNG	
DT701	A4153-0076	V.F.DISPLAY;SVV-9SS02 SV-80X	
LD701	62309-110-340	LED;GL-3HD7/GL3HD8	
Q701	62137-701-010	TRANSISTOR;KSR 1001 TAPG	
R701	61048-177-473	R-CARBON;RD 1/8 T 473-J	
R705	61048-177-102	R-CARBON;RD 1/8 T 102-J	
R706	A1006-0824	R-METAL FILM;FM 1/4 T 120-J 12R SFR25	
R711	61048-177-121	R-CARBON;RD 1/8 T 121-J	
RM701	A1294-0015	MODULE-REMOCOON;GP1U781R/ASAN 38KHZ	
SW701	63599-016-070	SW-TACT;EVO-QS2 05K	
SW702	63599-016-070	SW-TACT;EVO-QS2 05K	
SW703	63599-016-070	SW-TACT;EVO-QS2 05K	
SW704	63599-016-070	SW-TACT;EVO-QS2 05K	
SW705	63599-016-070	SW-TACT;EVO-QS2 05K	
SW706	63599-016-070	SW-TACT;EVO-QS2 05K	
SW707	63599-016-070	SW-TACT;EVO-QS2 05K	
SW708	63599-016-070	SW-TACT;EVO-QS2 05K	
SW709	63599-016-070	SW-TACT;EVO-QS2 05K	
SW710	63599-016-070	SW-TACT;EVO-QS2 05K	
SW711	63599-016-070	SW-TACT;EVO-QS2 05K	
SW712	63599-016-070	SW-TACT;EVO-QS2 05K	
SW713	63599-016-070	SW-TACT;EVO-QS2 05K	
SW714	63599-016-070	SW-TACT;EVO-QS2 05K	
SW715	63599-016-070	SW-TACT;EVO-QS2 05K	
SW716	63599-016-070	SW-TACT;EVO-QS2 05K	
SW726	63519-073-021	SW-SLIDE;SSS 322	
W725	A1006-0794	R-METAL FILM;FM 1/4 T 100-J 10R SFR25	
ZD701	62169-403-301	DIODE-ZENER;UZ 3.0B TAPG	
	V9099-633-210 V9099-633-218 V9099-633-205	REMOCOON ASSY SESA SV-30XK/SEG SV-31XK/SEG SV-40XK/SEG	
CT1	64043-0166-00	DOOR-BATTERY;ABS94HB T2 D/GRY NR-3346	
CT2	61637-802-479	C-ELEC;CEAP 6.3V 4.7M SE(3X5)	
CT3	61453-131-101	C-CERAMIC;CHIP;0805 5A 101JAT WA	
	61453-131-101	C-CERAMIC;CHIP;0805 5A 101JAT WA	

Loca.No	Part No	Description & Specification	Remark
ICT1	A4002-0389	IC-MCU;KS51810-05 DIP	
LDT1	A4150-0168	LED-INFRARED;S15312-H NTR 940NM/1.4V	
QT1	A4050-0140	TR-GENERAL;CHIP;2SC2412KR 200MW 100MA 100MHZ 50V S	
RT1	61079-917-010	R-CHIP;RH C2012 CS 010-J	
XT01	64539-102-311	CERAMIC RESONATOR;CSB455EBL/KBR455BKTL	
*****	*****	*****	*****

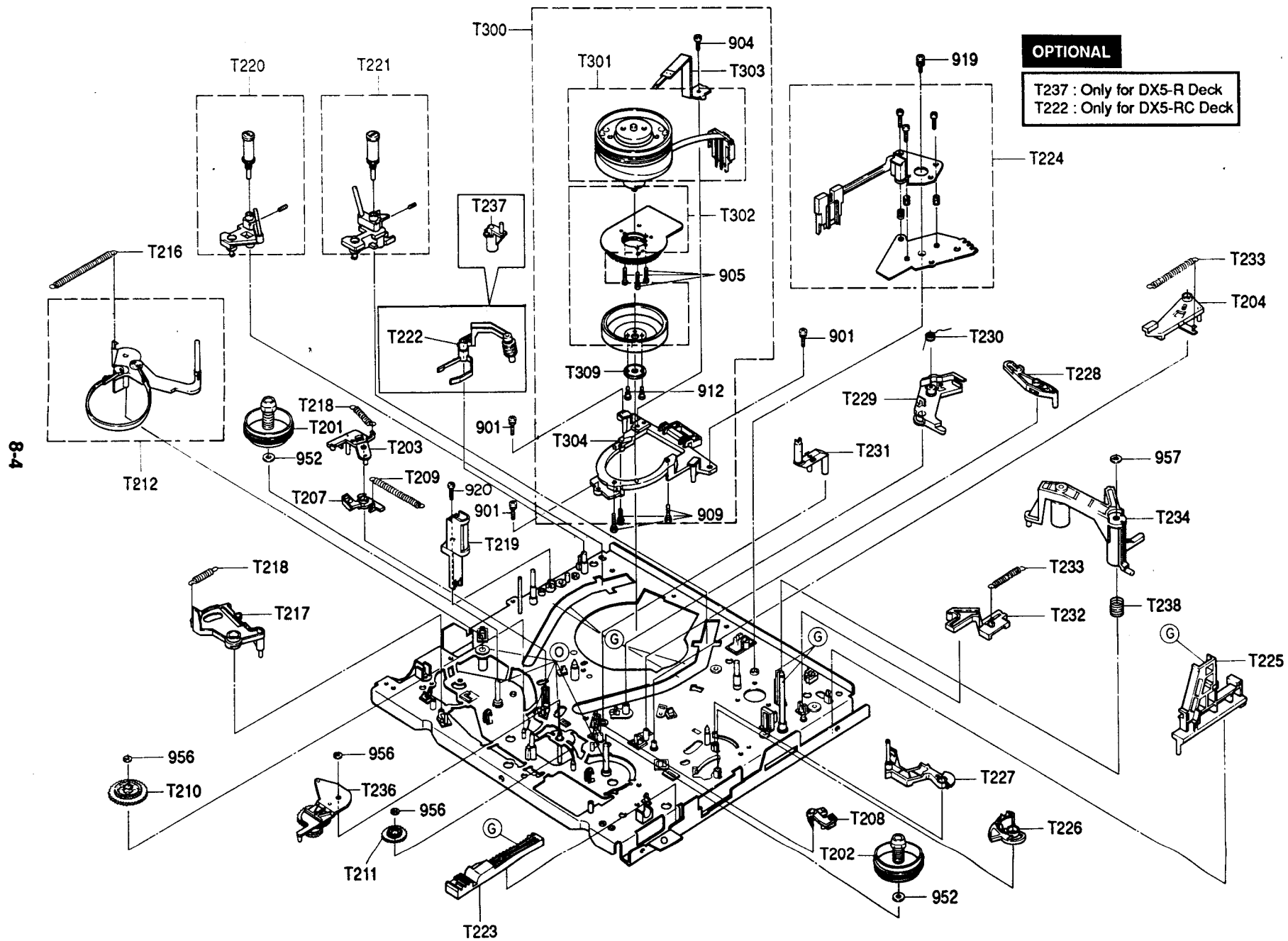
8. EXPLODED VIEW / PARTS LIST

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8-1. INSTRUMENT ASSEMBLY



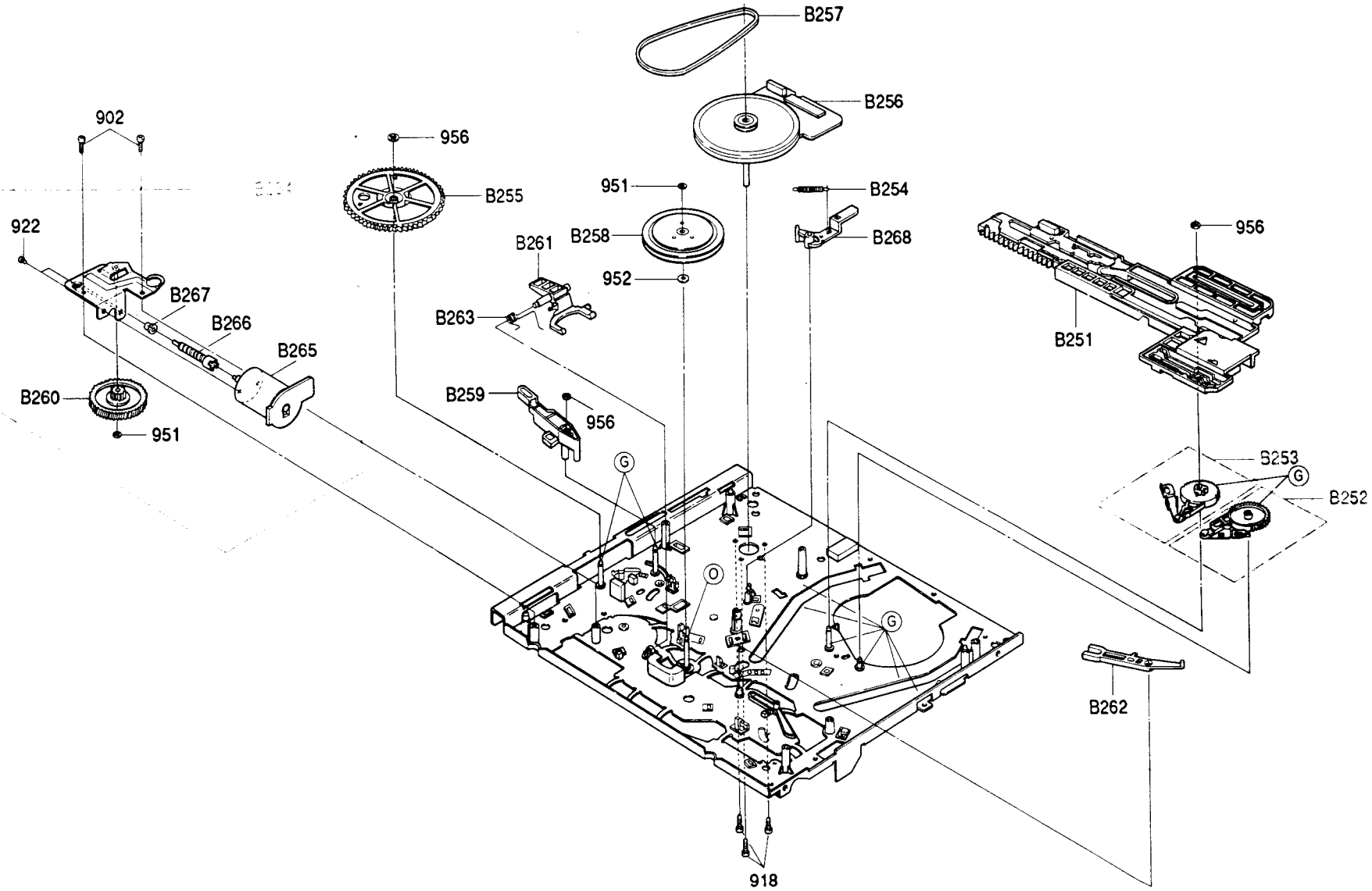
8-2



Loca.No	Part No	Description & Specification	Remark
1	V9000-502-205	ASSY PANEL FRONT;SV-30XK/SEG	
	V9000-502-226	ASSY PANEL FRONT;SV-31XK/SEG	
	V9000-502-225	ASSY PANEL FRONT;SV-31XK/SEG	
	V9000-502-217	ASSY PANEL FRONT;SV-40XK/AMF	
	V9000-502-209	ASSY PANEL FRONT;SV-40XK/SEC,SEG,SEP	
2	V4043-0177-00	DOOR-FRONT(L);ABS94HB T2.5 GRY SV-80X	
3	V4043-0176-03	DOOR-FRONT(R);ABS94HB T2.5 GRY (SV-30XK)	
	V4043-0176-01	DOOR-FRONT(R);ABS94HB T2.5 GRY (SV-40XK)	
4	V4083-0454-00	KNOB-SHUTTLE;ABS94HB GRY (SV-40XK ONLY)	
21	V4043-0175-01	DOOR-CASSETTE;ABS94HB T2.5 GRY SV-40XK/SEG	
22	62724-0090-00	SPRING;SUS304 (GE/PCA)	
101	V2002-0027-01	CABINET-TOP;PVC+SECC T0.75 M/GRY(47041) SV-80XK	
108	66009-0079-00	CONNECTOR BOARD(ASSY);HIPS94HB(NON-BR) SV-70X T2	
109	V3312-0149-00	COVER-BOTTOM;SPG T0.5 NTR SV-80X	
153	67158-240-121	SCREW BH;2-4*12 FE FZY	
155	67158-240-163	SCREW-TAP BH;2-AX16 FE FZB	
157	60504-0040-00	SCREW-TAP TITE;BH + TB 3 L12 SWRCH18A ZPC3 YEL	
158	67158-230-120	SCREW-TAP TITE BH;3X10 FE FZY	
200	DX5-R	DECK ASSY;V-1 DECK	
601	69557-302-212	ASSY MAIN;SV-30XK/SEG,SV-31XK/SEG	
	68557-302-213	ASSY MAIN;SV-30XK/AMF,EDI,NSI,SEC,SEI,SEP,SV-31XK/SEC	
	69557-302-216	ASSY MAIN;SV-40XK/SEG	
	69557-302-217	ASSY MAIN;SV-40XK/SEC,SEI,SEP	
	69557-302-218	ASSY MAIN;SV-40XK/AMF,EDI,NSI	
661	A6006-0271	POWER-CORD;CP2 KJP-140# KJ0201 IEC 1.93MT BLK	
	A6006-0272	POWER-CORD;CP2 KJP-419K FTZ 1.932MT (SEG ONLY)	
663	A6010-1364	CONNECTOR-WAFER;35329-4010 WHT MOLEX	
670	69571-302-215	ASSY F/TIMER;SV-30XK/SEG	
	69571-302-216	ASSY F/TIMER;SV-30XK/AMF,EDI,NSI,SEC,SEI,SEP	
	69571-302-225	ASSY F/TIMER;SV-31XK/SEG	
	69571-302-226	ASSY F/TIMER;SV-31XK/SEC	
	69571-302-209	ASSY F/TIMER;SV-40XK/SEG	
	69571-302-210	ASSY F/TIMER;SV-40XK/AMF,EDI,NSI	
	69571-302-211	ASSY F/TIMER;SV-40XK/SEC,SEI,SEP	
LD601A	63323-0313-00	HOLDER-LED;POM	
PT601A	63323-0312-00	HOLDER-PHOTO;POM	
PT602A	63323-0312-00	HOLDER-PHOTO;POM	
SG01A	63322-0311-00	HOLDER-TR;POM	
SG02A	63322-0311-00	HOLDER-TR;POM	
SC301	62073-0215-01	SHIELD-CASE P/AMF TOP;SPTE T0.3 WHT SV-1400	

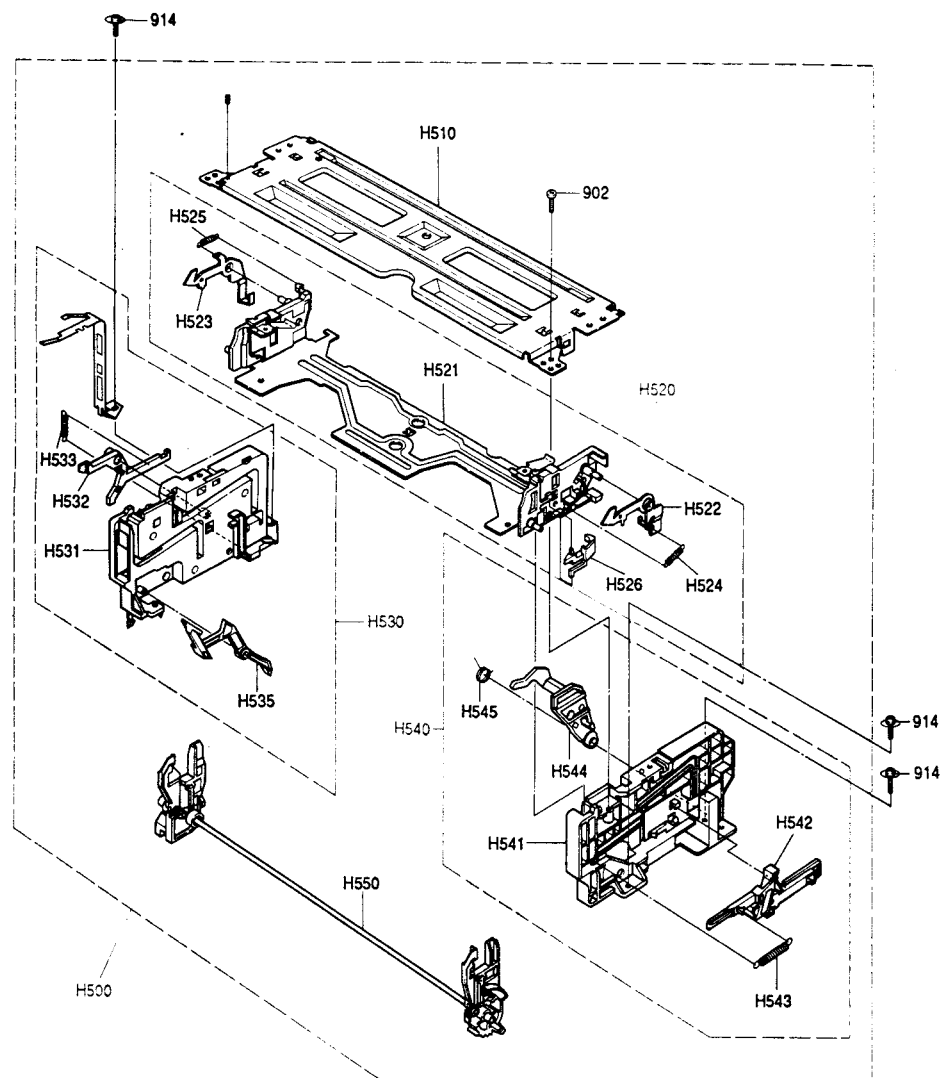
Loca.No	Part No	Description & Specification	Remark
901	60509-0064-00	SCREW-MACHINE;BH FP M3 L8 FE FZY WS	
904	67106-330-061	SCREW-PH;M3X6 TAP TITE	
905	60509-0103-00	SCREW-MACHINE;PH FP M2.6X10 SWRCH10A GLD	
909	60504-0081-00	SCREW-MACHINE;BH + FP 2.6 L9 SWRCH10A YEL	
912	67904-604-710	SCREW-DAMPER;M2.0X7.0 SWCM 10(MFZN2-C)	
919	60504-0102-00	SCREW-MACHINE;BH WLP UP M3X8 SWRCH10A YEL	
920	60504-0104-00	SCREW-TAPPING;BH B M2.6X10 SWRCH18A YEL	
952	67304-103-410	WASHER-PLAIN;3.2X6X0.5 POLYSLIDER	
956	60534-0034-00	WASHER-SLIT;POLY T0.5 OD2.5 ID7	
957	60534-0035-00	WASHER-SLIT;POLY T0.5 OD3.5 ID9	
T201	61574-0023-00	REEL-DISK L ASSY;POM D30 X-5	
T202	61574-0021-00	REEL-DISK R ASSY;POM D X-5	
T203	62613-0013-00	BRAKE-SUB L;PBT X-5	
T204	62614-0011-00	BRAKE-SUB R ASSY;PBT LUPOX EG 5000H X-5	
T207	62614-0009-00	BRAKE-MAIN L ASSY;PBT X-5	
T208	62614-0007-00	BRAKE-MAIN R ASSY;PBT X-5	
T209	62724-0208-00	SPRING-BRAKE MAIN;ES SUS304WPB PT0.35 ID2.8 OD4.2	
T210	61474-0099-00	GEAR-RELAY S ASSY;PEBAX M0.5 M48 SP	
T211	61474-0095-00	GEAR-RELAY(T);PEBAX#6333 M0.5 Z41 SP X-5	
T212	61543-0071-00	ARM-TENSION FULL ASSY;X-5	
T216	62724-0215-00	SPRING-TENSION;ES SUS304WPB P10.35 ID2.1 L33.25	
T217	61533-0098-00	LEVER-REC S/W;PBT	
T218	62724-0217-00	SPRING-REC S/W;ES SUS304 P10.23 D3.5 L14.8	
T219	66603-0005-00	MAGNET-F/E HEAD;X-5	
T220	61643-0027-00	SLIDER-G/R ASSY(S);X-5	
T221	61643-0029-00	SLIDER-G/R ASSY(T);X-5	
T222	69000-292-017	ASSY A/C HEAD;DX5-R	(OPTIONAL)
T223	61642-0022-00	SLIDER-RACK HOUSING;POM T10.5 BLK	
T224	66603-0006-00	MAGNET-ACE HEAD ALL(ASSY);X-5	
T225	61642-0024-00	SLIDER-PINCH;POM T2 NAT	
T226	61533-0096-00	LEVER-REVIEW;ZYTEL T3.8 BLK	
T227	61544-0073-00	ARM-REVIEW ASSY;PPS X-5	
T228	61533-0094-00	LEVER-PINCH CAM;PBT6300T T5 X-5	
T229	61532-0093-00	LEVER-PINCH COMP;PBT T13.3 X-5	
T230	62724-0212-00	SPRING-PINCH(COMP);TS SWPB P11.0 ID6 OD8	
T231	62713-0054-00	PRISM-LED;PMMA D5 IF-850	
T232	61643-0025-00	SLIDER-PUSH;LUPOX 2150 T2 NTR	
T233	62724-0216-00	SPRING-SLIDE PUSH;ES SUS304WPB P10.55 D3.55 L24.75	
T234	67172-0174-00	UNIT-PINCH ROLLER(ASSY);X-5	
T236	61603-0006-00	IDLER-ASSY;POM X-5	
T237	63383-0031-00	STOPPER-TAPE;POM T2 NAT X-5 DECK	
T300	69020-124-030	CYLINDER ASSY;CX5-D4P	(OPTIONAL)
T301	69000-400-161	CYLINDER SUB ASSY;CX5-D4P	
T302	66823-0061-00	MOTOR-CYLINDER;E20XL03	
T303	67084-0076-00	HEAD-BRUSH(ASSY);SECC20/20+CARBON	
T304	62201-0097-00	BASE-CYLINDER;ADC12 X-5	
T309	63344-0002-00	RETAINER-RUBBER(ASSY);SECC+SILICON	

8-3. MECHANICAL PARTS (BOTTOM SIDE)



Loca No	Part No	Description & Specification	Remark
902	60509-0063-00	SCREW-TAPPING,BH B M3 L8 FE FZY	
918	60504-0120-00	SCREW-TAP TITE,BH + B P12.6 L7 SWRCH18A YEL X-5	
922	67008-130-171	SCREW PH,+M3X3 FE FZY	
951	87334-800-310	WASHER-SLIT,B18 EVPIEVT8 E	
952	67304-103-410	WASHER-PLAIN,3.2X6X0.5 POLYSLIDER	
956	60534-0034-00	WASHER-SLIT,POLY T0.5 OD2.5 ID7	
B251	61641-0023-00	SLIDER-MAIN,PBT2002K T12.4 NAT	
B252	61473-0107-00	GEAR-LOADING L ASSY,X-5	
B253	61473-0105-00	GEAR-LOADING R ASSY,X-5	
B254	62724-0211-00	SPRING-BRAKE CAPSTAN,ES SUS304WPB P10.4 ID1.7 OD2.	
B255	61472-0104-00	GEAR-MASTER,LUPOXEG5000H M1 Z60 SP NAT	
B256	66823-0059-00	MOTOR-D.D CAPSTAN,F2QTB04	
B257	61494-0009-00	BELT-CAPSTAN,CY-65 FR W2 T2 L88.6	
B258	61453-0003-00	CLUTCH- ASSY	
B259	61533-0095-00	LEVER-SLIDER PINCH,PBT T4 NAT	
B260	61473-0102-00	GEAR-WORMWHEEL,POM M0.55 Z57 SP NAT	
B261	61533-0090-00	LEVER-SHIFT,PBT T2.5	
B262	61533-0091-00	LEVER-IDLER CHANGE,PBT T3.3	
B263	62724-0207-00	SPRING-LEVER SHIFT,TS SUS304WPB P10.7 ID5.2 OD6.6	
B264	67172-0173-00	UNIT-LOADING(ASSY),X-5	
B265	66823-0060-00	MOTOR-LOADING ASSY,POM+ RF370C X-5	
B266	61474-0103-00	GEAR-WORM LOADING,PBT M0.55 WO NAT	
B267	63324-0299-00	HOLDER-SHAFT,POM NAT	
B268	62614-0014-00	BRAKE-CAPSTAN ASSY,POM X-5	

8-4. HOUSING ASSEMBLY



Item No	Part No	Description & Specification	Remark
902	60509-0063-00	SCREW-TAPPING;BH B M3 L8 FE FZY	
914	67094-700-710	SCREW-PWH;+M3X6 FE FZY	
H500	62052-0014-00	HOUSING- ASSY;X5FL2326A X-5	
H510	62202-0103-00	CHASSIS- UPPER;SECC T1.0 NAT X-5	
H520	63322-0317-00	HOLDER- CASSETTE(ASSY);SECC X5FL0810A X-5	
H521	63321-0314-00	HOLDER- CASSETTE;SECC NAT 1/8H HRB 50	
H522	61533-0102-00	LEVER- LOCK(R);SECC T1.2	
H523	61533-0104-00	LEVER- LOCK(L);SECC T1.2	
H524	62724-0220-00	SPRING- LEVER LOCK;ES SUS304WPB P10.2 ID2.6 OD3.0	
H525	62724-0220-00	SPRING- LEVER LOCK;ES SUS304WPB P10.2 ID2.6 OD3.0	
H526	61533-0103-00	LEVER- KEY CASSETTE;POM(LUCEL N109-LD) NAT T2.5	
H530	62203-0105-00	CHASSIS- SIDE(ASSY);ABS X5FL0505A X-5	
H531	62201-0102-00	CHASSIS- SIDE;ABS (HF-380) T10 BLK X-5	
H532	61532-0101-00	LEVER- LIGHT SHUTTER;POM(LUCEL N109-LD) BLK T2.5	
H533	62724-0219-00	SPRING- LIGHT SHUTTER;ES SUS304WPB P10.2 ID2.6 OD3.0	
H534	61533-0100-00	LEVER- DOOR;POM(LUCEL N109P-LD) BLK T5	
H540	62203-0104-00	CHASSIS- SIDE(ASSY);ABS X5FL0505A X-5	
H541	62201-0101-00	CHASSIS- SIDE;ABS (HF-380) T10 BLK X-5	
H542	61542-0032-00	SLIDER- DAMPER;POM(LUCEL N109-LD) T4 BLK	
H543	62724-0218-00	SPRING- SLIDE DAMPER;ES SUS304WPB P10.4 ID3.8 OD4.6	
H544	61533-0099-00	LEVER- LID OPENER;POM(LUCEL N109-LD) NAT T5	
H545	62724-0222-00	SPRING- LID OPENER;TS SWPB P10.55 ID8.9 OD10	
H550	61403-0073-00	SHAFT- ARM(ASSY);SUM24L X5FL0405A X-5	

9. ADJUSTMENT

9.1. MECHANICAL ADJUSTMENT

9-1-1. TAPE TRANSPORT SYSTEM

Note :

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

- Noise observed on the screen.
- Tape damage.
- Parts replacement in the tape transport system.

1. Location of Tape Transport Adjustment (Adjustment Reference)

Lower flange height of tape guide is used as the basic reference for the transport adjustment.
To maintain the height of the tape guide are prevent damage, do not apply excessive force onto the main base.

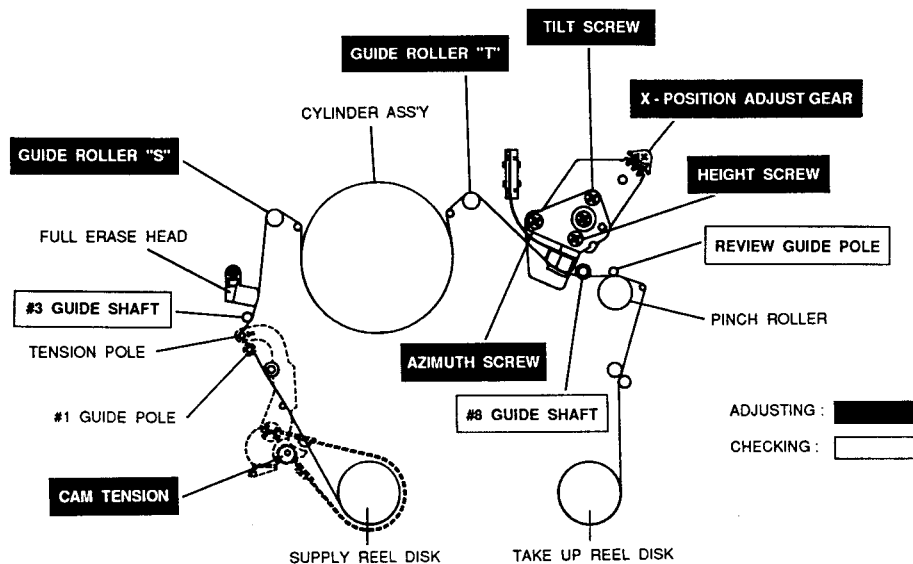


Fig. 1 Location of Tape Transport Adjustment

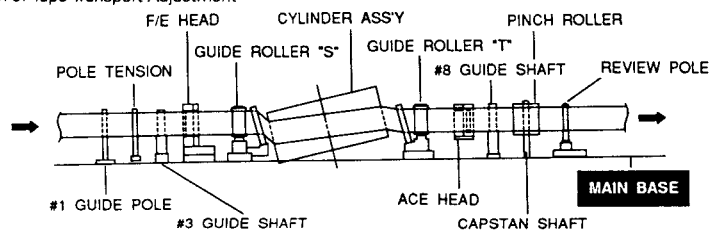


Fig. 2 Tape Travel Diagram

2. Tape Transport System Adjustment

1) Pre-adjustment

When the part(s) are replaced, perform the required adjustments by referring to procedures for the tape transport system. When the part (s) are replaced, the tape path may be changed. First run a E-180 tape and make sure excessive tape wrinkle does not occur at each tape guide.

1. If tape wrinkle is observed at the S, T-guide rollers, turn the S, T-guide rollers until wrinkle disappears.
2. If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the A/C head.

2) Adjustment Procedure

[1] A/C Head Assembly Adjustment

Test Point : W105 (Envelope)
W106 (H'D SW - Trigger)
W107 (CTL Pulse)
W104 (Audio Out)
Test Tape : PAL Color Bar
Mono Scope
Blank Tape (E-240)

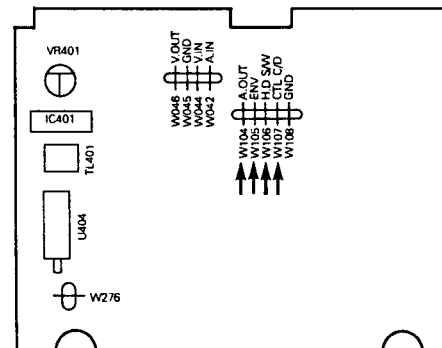


Fig. 3 Location of Test Point (Main PCB:Top Side)

a. A/C Head Height Adjustment

1. Run the alignment tape (PAL Color Bar) in the playback mode.
2. Observe surface of the audio head using a dental mirror.
3. Turn screw (A), (B), (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25 mm.
(Refer to Fig. 4 and 5)

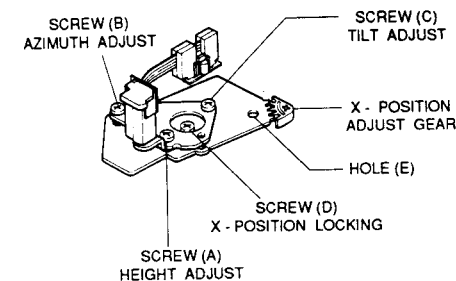


Fig. 4 Location of A/C Head Adjustment Screw

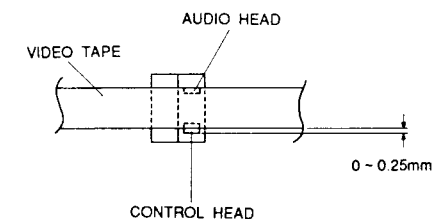


Fig. 5 A/C Head Height Adjustment

b. A/C Head Tilt Adjustment

1. Playback an E-240 tape and observe the position of the tape at the lower flange of tape guide.
2. Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 6 (B).
3. If a curl or wrinkle of the tape has occurred, slightly turn the screw (C) tilt adjust on the A/C H'd ass'y clockwise until it disappears as shown in Fig. 6 (B).
4. Reconfirm the A/C head height.

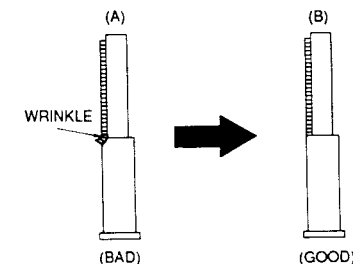


Fig. 6 Tape Guide Check

c. Audio Azimuth Adjustment

1. Load alignment tape (Mono Scope) and playback the 6KHz signal.
2. Connect channel-1 scope probe to W104 on the Main PCB.
3. Adjust screw (B) to achieve maximum audio level. (See Fig. 4)

d. A/C Head Position (X-Point) Adjustment

(If the remote control (part no. : 69099-633-252) is available)

- Press the "1" button and "INPUT" button simultaneously.

This will adjust the tracking center automatically.

(If the remote control (part no. : 69099-633-252) is not available)

1. Playback the Mono Scope alignment tape.
2. Connect CH-1 scope probe to W107 and CH-2 scope probe to W106. And then, trigger head switching pulse.
3. Set tracking preset to 14.5msec (2H'd : 0.5msec) using the "FINE" button ▲/▼ of remote control. (Refer to Fig. 7 and 8)
4. Connect CH-1 scope probe to W105 and the CH-2 to "H'D SW" trigger on CH-1.
5. Insert the adjusting driver(+) into X-Position adjusting gear. Adjust the driver in either direction for maximum envelope waveform.

Note : Since the adjusting gear unit may be damaged, do not adjust by force when adjusting the X-point using the adjusting drive(+). After turn the X-point adjusting screw(D) counterclockwise a little, perform the adjustment. After adjustment is completed, tighten the screw.

◆ Setting of Scope ◆

- Volt/div. : CH-1 = 0.1V
CH-2 = 0.2V

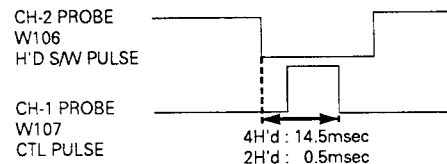


Fig. 7 Tracking Preset Adjustment

REMOTE BUTTONS	CONTROL PULSE REMOVE
PUSH	
▲ FINE	
▼	
▲ FINE	
PUSH	

Fig. 8 Control Pulse Adjustment

[2] Linearity Adjustment (S, T-guide Rollers Adjustment)

Test Point : W105 (Envelope)
W106 (H'D SW - Trigger)
Test Tape : Mono Scope

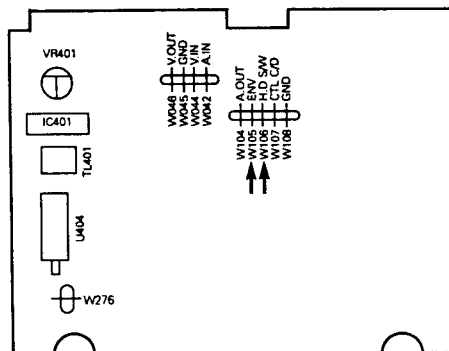
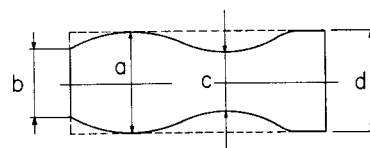


Fig. 9 Location of Test Point (Main PCB:Top Side)

1. Playback the Mono Scope alignment tape (SP mode).
2. Observe the video envelope signal on an oscilloscope triggered by the video switching pulse.
3. Make sure the video envelope waveform (in its minimum output) meets the specification shown in Fig. 10. If it does not, adjust as follows ;

Note :

- a=Maximum output of the video RF envelope.
- b=Minimum output of the video RF envelope at the entrance side.
- c=Minimum output of the video RF envelope at the center point.
- d=Maximum output of the video RF envelope at the exit side.



a b c d

$c, b, d/a \geq 63\%$

Fig. 10 Envelope Waveform Adjustment

4. If the section A in Fig. 11 does not meet the specification, adjust the S-guide roller up or down.
5. If the section B in Fig. 11 does not meet the specification, adjust T-guide roller up or down.

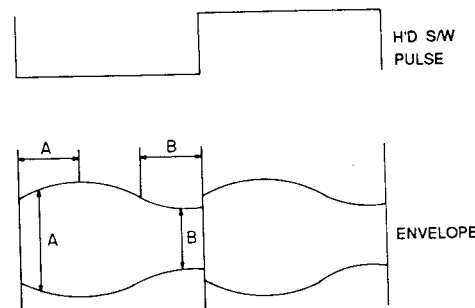


Fig. 11 Adjustment Points

6. Slightly loosen the set screw at the lower part of the S, T-guide rollers with a Hex Wrench (to be sure) so that the guide roller can be adjusted with reasonable tightness (Refer to Fig. 12).

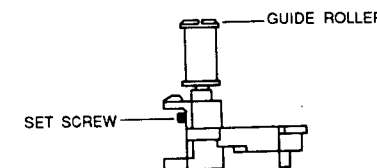


Fig. 12

7. Playback the Mono Scope alignment tape (SP mode).
8. Connect an oscilloscope CH-1 to the W105 and CH-2 to the W106 on the same PCB for triggering.
9. Turn the guide roller heads with a flat head (■) screw driver to obtain a flat video RF envelope as shown in Fig. 13.
10. After the adjustment is completed, tighten the set screws.

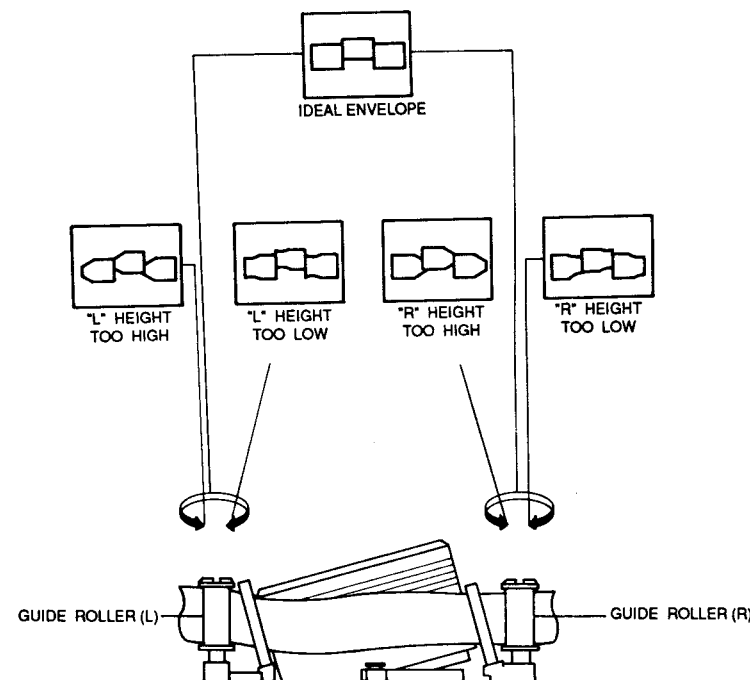


Fig. 13 S, T-Guide Roller Height Adjustments

[3] Check for transitional operation from RPS to play

Check transition from RPS mode to play mode, using a pre-recorded SP tape, make sure the entrance side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 14).

If the envelope waveform does not reach specified peak-to-peak amplitude within 3 seconds, adjust as follows :

1. Make sure there is no gap between the supply roller lower flange and the tape.
If there is a gap, adjust the supply guide roller again.
2. Change operation mode from the RPS to the play mode again and make sure entrance side of envelope rises within 3 seconds.

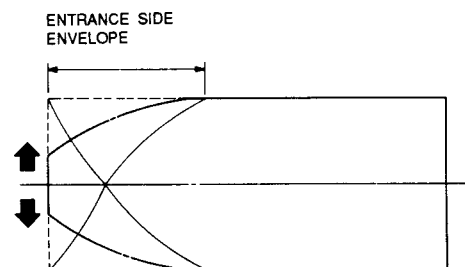


Fig. 14 Video envelope rising when operation mode changes from RPS to play mode.

[4] Envelope check

1. Make recordings on E-120 and E-180 tapes, and make sure the playback output envelope meets the specification as shown in Fig. 15.
2. Play back a self recorded tape (recording made on this unit), (with a E-120) the video envelope should meet the specification as shown in Fig. 15.
In SP mode, (A) should be same as (B).
If the head gap is wide, upper cylinder should be checked.

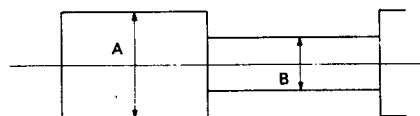


Fig. 15 Envelope Output and Output Level Difference

[5] Tape wrinkle check

1. Run the E-240 tape in the playback, FPS, RPS and the pause mode and then observe tape wrinkle at each guide.
2. If excessive tape wrinkle is observed in the mode shown above, perform the following adjustments playback mode:

- Tape wrinkle at the S, T-guide roller section : Linearity adjustment.
- Tape wrinkle at tape guide flange : A/C head assembly coarse adjustment.

9-1-2. REEL TORQUE

1. Reel Torque

1. The rotation of the capstan motor drives the clutch ass'y through the belt capstan motor.
2. Brake operation and shift operation in FF/REW are done by a slide lever.
3. Transportation of accurate driving force is done by gears (clutch ass'y).

MODE	TORQUE g/cm	GAUGE
PB/REC	100 ± 30	Cassette Torquemeter
RPS	170 ± 30	Cassette Torquemeter
FF/REW	Minimum 600	Torque Gauge

Note : If the spec does not meet the specification in above chart, replace the clutch ass'y and then recheck.

2. Location of Tension Pole and Back Tension Adjustment

1. Remove the housing ass'y and set the deck to "PLAY" mode.
2. Adjust the cam tension to 0 ~ -0.5mm from the center of supply roller.
3. The back tension meter should be used to check back tension. It should be 40 ~ 47g.cm.

Counterclockwise : Torque UP
Clockwise : Torque DOWN

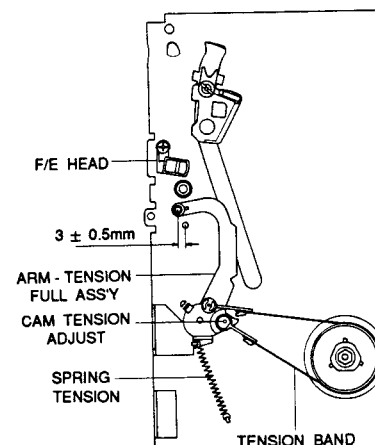


Fig. 16 Tension Pole and Back Tension Adjustment

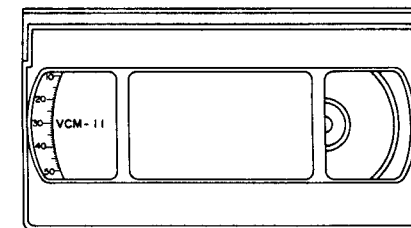


Fig. 17 Back Tension Tape Torque Cassette

9-2. ELECTRICAL ADJUSTMENTS

9-2-1. PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustment only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

【1】Required Test Equipment

- 1. Color Television or Monitor.
- 2. Oscilloscope : Wide-band, dual-trace, triggered delayed sweep.
- 3. DC Voltmeter.
- 4. TV CH Generator.
- 5. Attenuator.
- 6. Recording tape (Blank tape).
- 7. Pattern Generator : PAL color bar, 100% White.

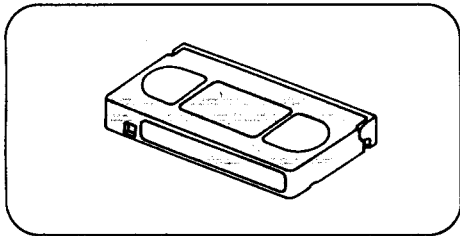


Fig. 1 Alignment Tape

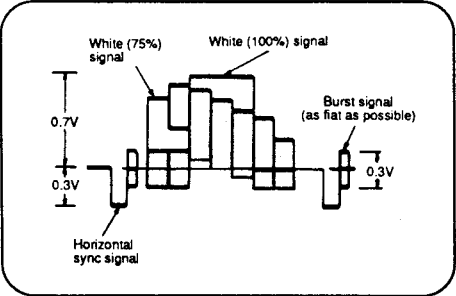


Fig. 2 Color bar signal of pattern generator

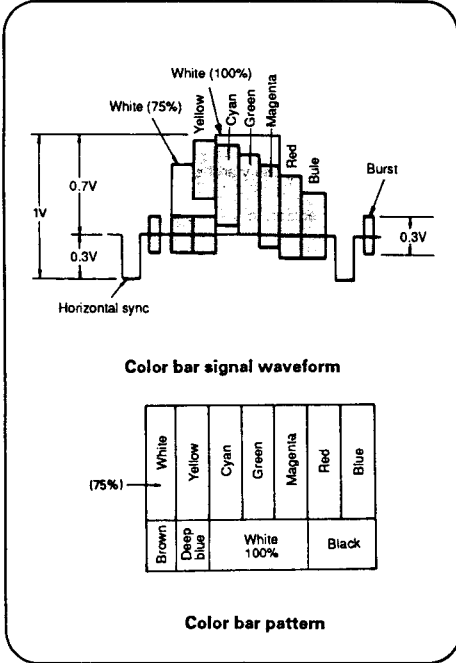
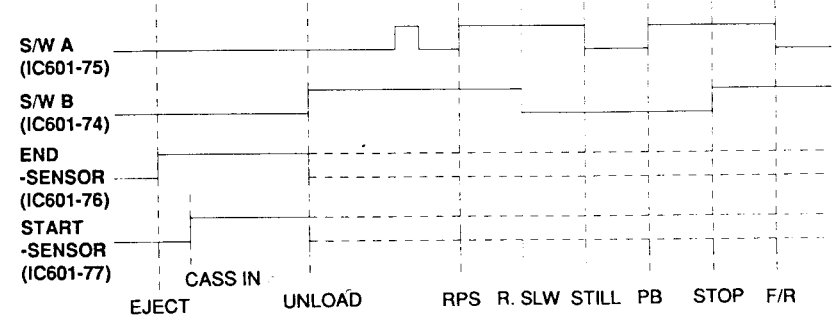


Fig. 3 Color bar signal of alignment tape (75% Color Bars)

9-2-2. TIMING CHART OF PROGRAM S/W



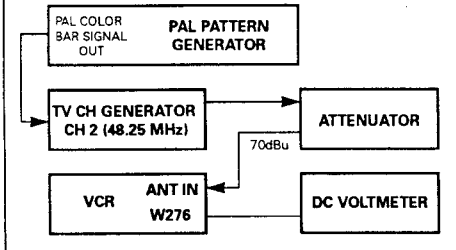
POSITION	PROGRAM S/W (SW601)				ACTION MODE
	E/S	S/S	S/W A	S/W B	
EJECT	L	L	L	L	EJECT
CASS IN	H	L H	L	L	CASS IN
UNLOAD	-	-	L	L H	UNLOAD
R. PS	-	-	L H	H	R. PS, Z-R. PS
R. SLOW	-	-	H	H L	PINCH ROLLER OFF POSITION
STILL	-	-	H L	L	STILL, SLOW, F-ADV
PLAY	-	-	L H	L	PB, T-STOP, REC, PAUSE, F. PS, Z-FPS
STOP	-	-	H	L H	STOP, POWER OFF
FF/REW	-	-	H L	H	FF, REW

9-2-3. SERVO & VIDEO SECTION

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/ALIGNMENT TAPE
2.	TEST POINT and ADJ. part
3.	RESULT & REMARKS

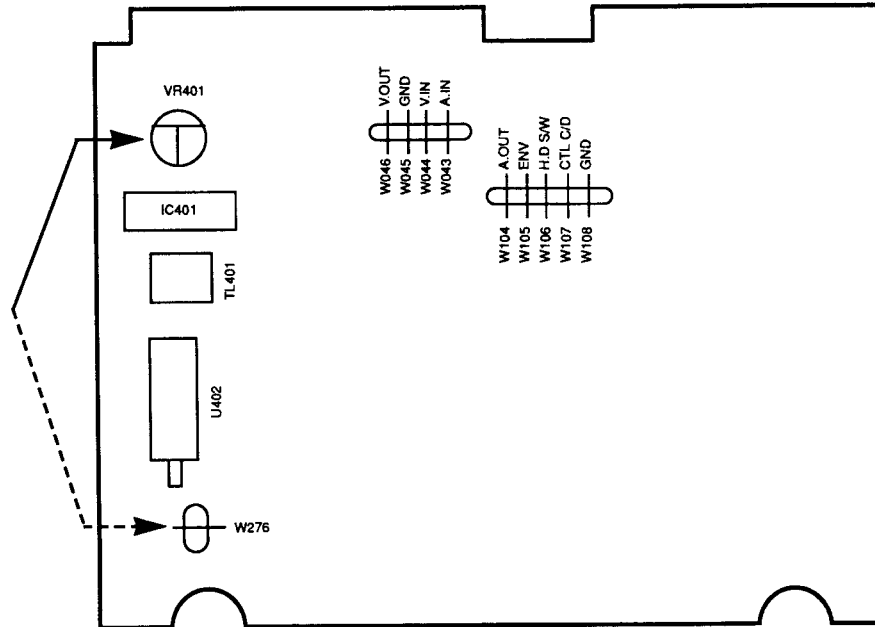
ADJ. part
Test Point

• Composition for RF AGC Adjustment



2 RF AGC

1. "E-E" (stop mode), RF signal.
2. W276 & VR401.
3. * Apply PAL color bar signal to the video input terminal of the TV channel generator and set channel selector to CH 2 (48.25 MHz).
 - * Adjust the point signal level so that the output of attenuator is 70dBu.
 - * Apply the output of attenuator to the ANT IN terminal of VCR.
 - * Set the channel of VCR to CH 2.
 - * Connect DC voltmeter to W276.
 - * Adjust VR401 for DC $4.2 \pm 0.1V$.



MAIN PCB

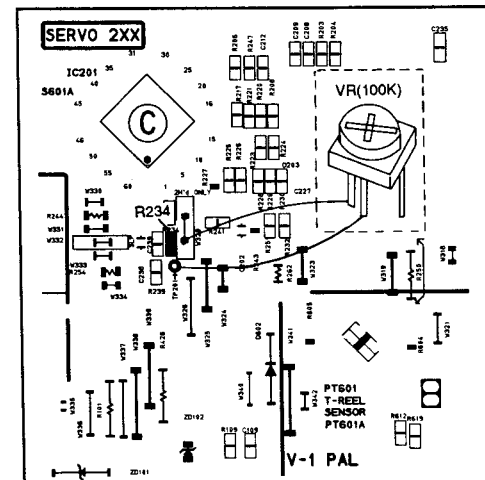


Fig. 2

1 HEAD SWITCHING POINT

(If the remote control (part no. : 69099-633-252) is available)

- Press the "3" button and the "INPUT" button simultaneously. This will automatically position the H'd S/W at $6.5H \pm 0.5H$.

(If the remote control is not available)

1. Remove the R234(chip) (See Fig. 2).
2. Install VR(100K) to the solder land of W329 & TP201 (See Fig. 2).
3. Play back the lion pattern tape (7KHz).
4. Connect CH1 of oscilloscope to W106 (H'd s/w) and CH2 to W046(video out).
5. Adjust VR(100K) so that the switching point is positioned at $6.5H \pm 0.5H$ (See Fig. 1).
6. When the adjustment is complete, remove the VR(100K) and measure its value using a multimeter. Install a fixed resistor which has the measured value and install it in place of R234.

NOTE :

- 1) If a chip resistor is not available, install on axial resistor in place of W329 & TP201 (See Fig. 2). At this time R234 chip resistor should be removed.
- 2) If measured value is 1.7K installing a 1.5K or 2K replacement is OK.

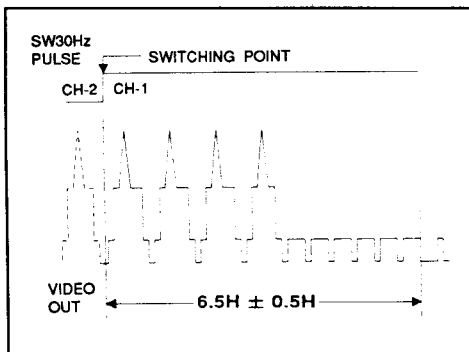


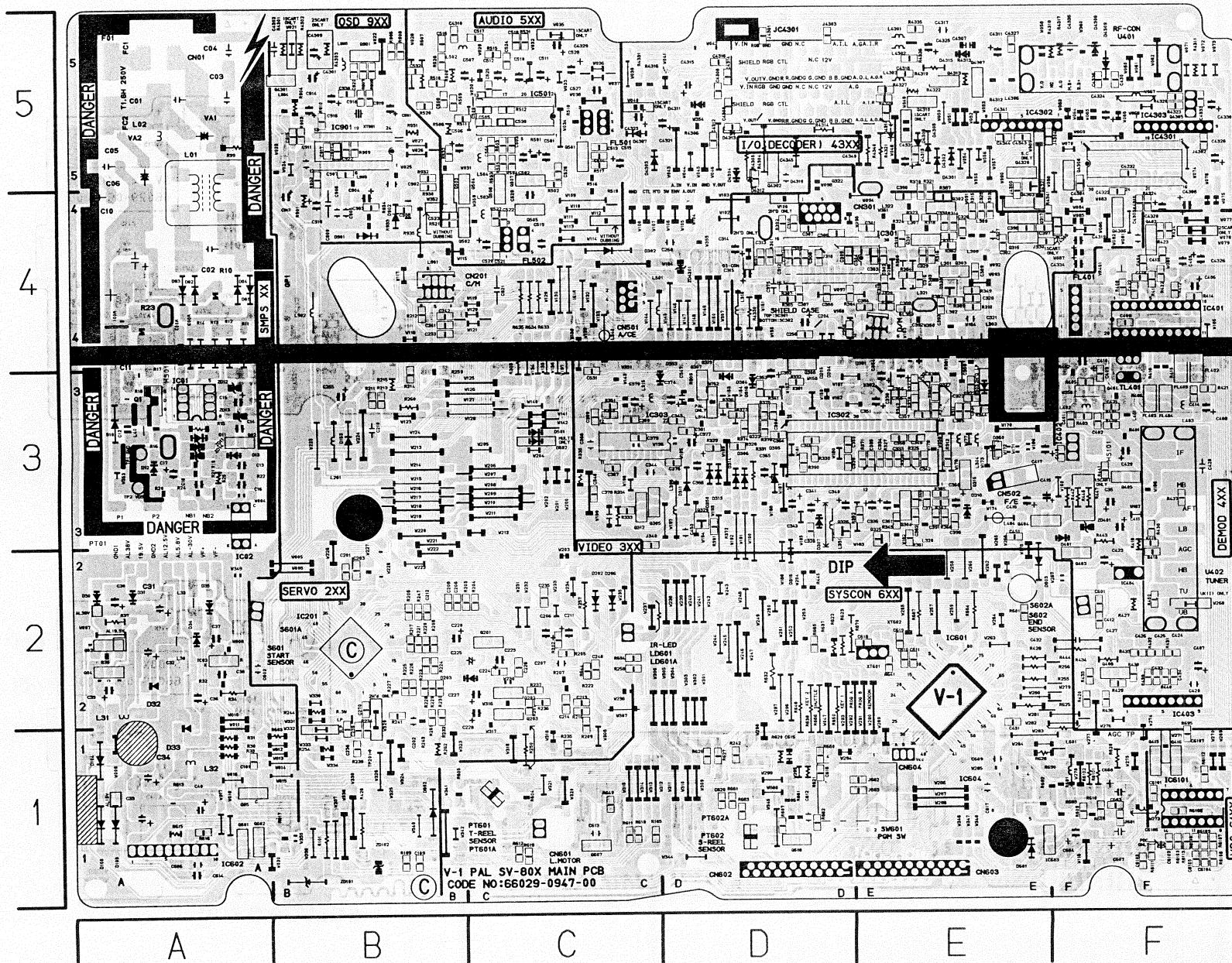
Fig. 1 Head switching point

10. P.C.BOARDS

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10-3. FUNCTION-TIMER (SV-40XK) -----	10-3

10-1. MAIN

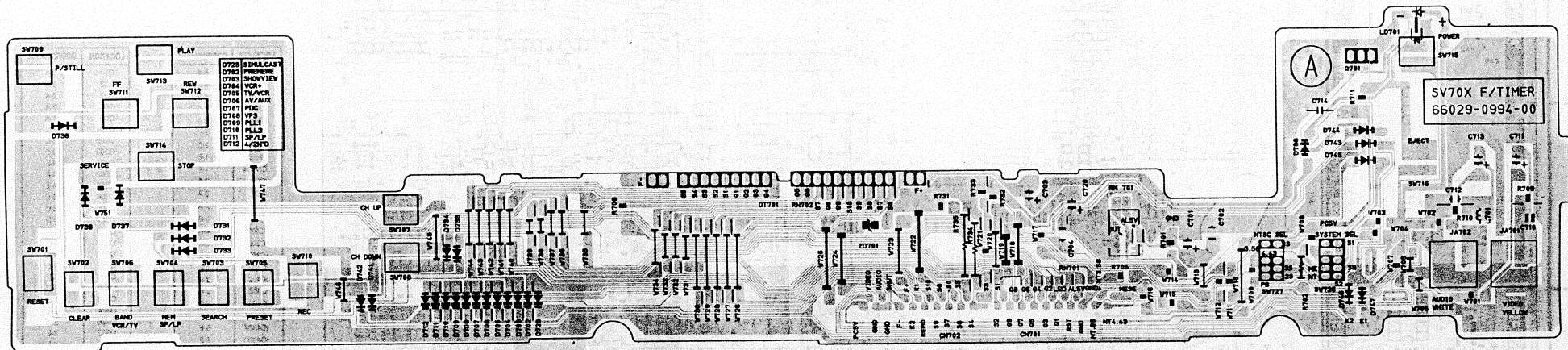
CHIP PARTS



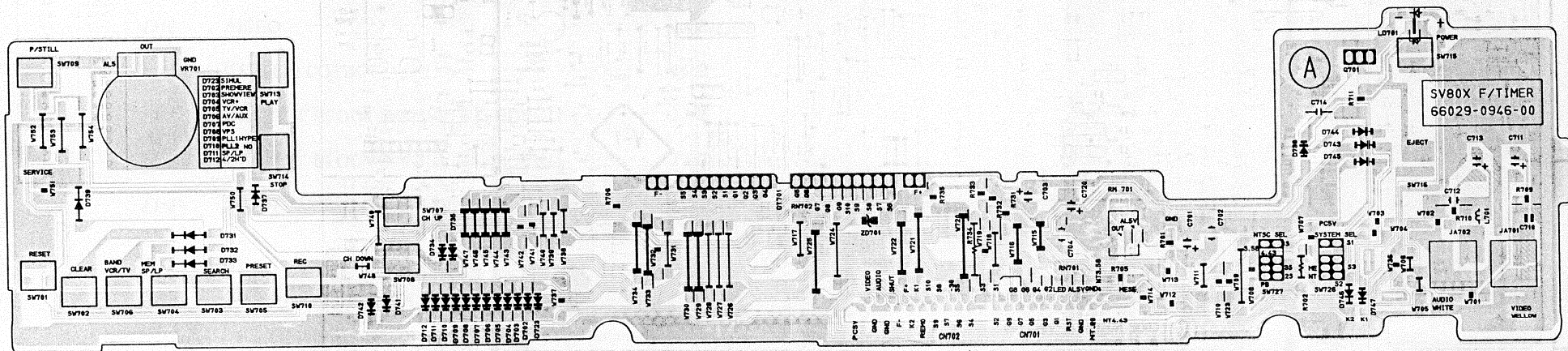
LOCATION	COORDINATES
CN01	5-A
CN201	4-C
CN301	4-E
CN501	4-C
CN502	3-E
CN601	1-C
CN602	1-D
CN603	1-E
CN604	1-E
IC01	3-A
IC02	3-A
IC03	2-A
IC201	2-B
IC301	4-D
IC302	3-E
IC303	3-C
IC401	4-F
IC402	3-F
IC403	2-F
IC404	2-F
IC4301	5-F
IC4302	5-E
IC4303	5-F
IC501	5-C
IC601	2-E
IC602	1-A
IC603	1-E
IC604	1-E
IC6101	1-F
IC901	5-B
PT601	1-C
PT602	1-C
S601	2-B
S602	2-E
VR401	4-F

LOCATION	COORDINATES
O1	3-A
O02	3-A
O03	2-A
O04	2-A
O05	1-A
O201	2-C
O202	2-C
O303	2-C
O301	4-E
O302	4-E
O303	4-E
O304	3-E
O305	3-C
O307	3-D
O308	3-D
O312	3-C
O318	4-E
O317	4-E
O315	3-E
O319	3-D
O323	3-D
O324	3-E
O326	3-D
O327	3-E
O328	4-E
O401	3-F
O402	4-F
O403	2-F
O404	3-E
O405	3-F
O408	2-F
O415	1-F
O418	1-F
O4301	5-B
O4302	4-D
O4303	4-E
O4305	5-F
O4306	4-F
O4307	5-E
O4308	4-F
O4310	5-E
O4313	5-E
O4320	4-E
O4321	4-E
O501	5-C
O502	4-C
O503	4-B
O504	4-C
O505	4-C
O601	1-A
O602	1-A
O607	1-C
O608	1-D
O901	5-B

10-2. FUNCTION-TIMER (SV-30XK\SV-31XK)



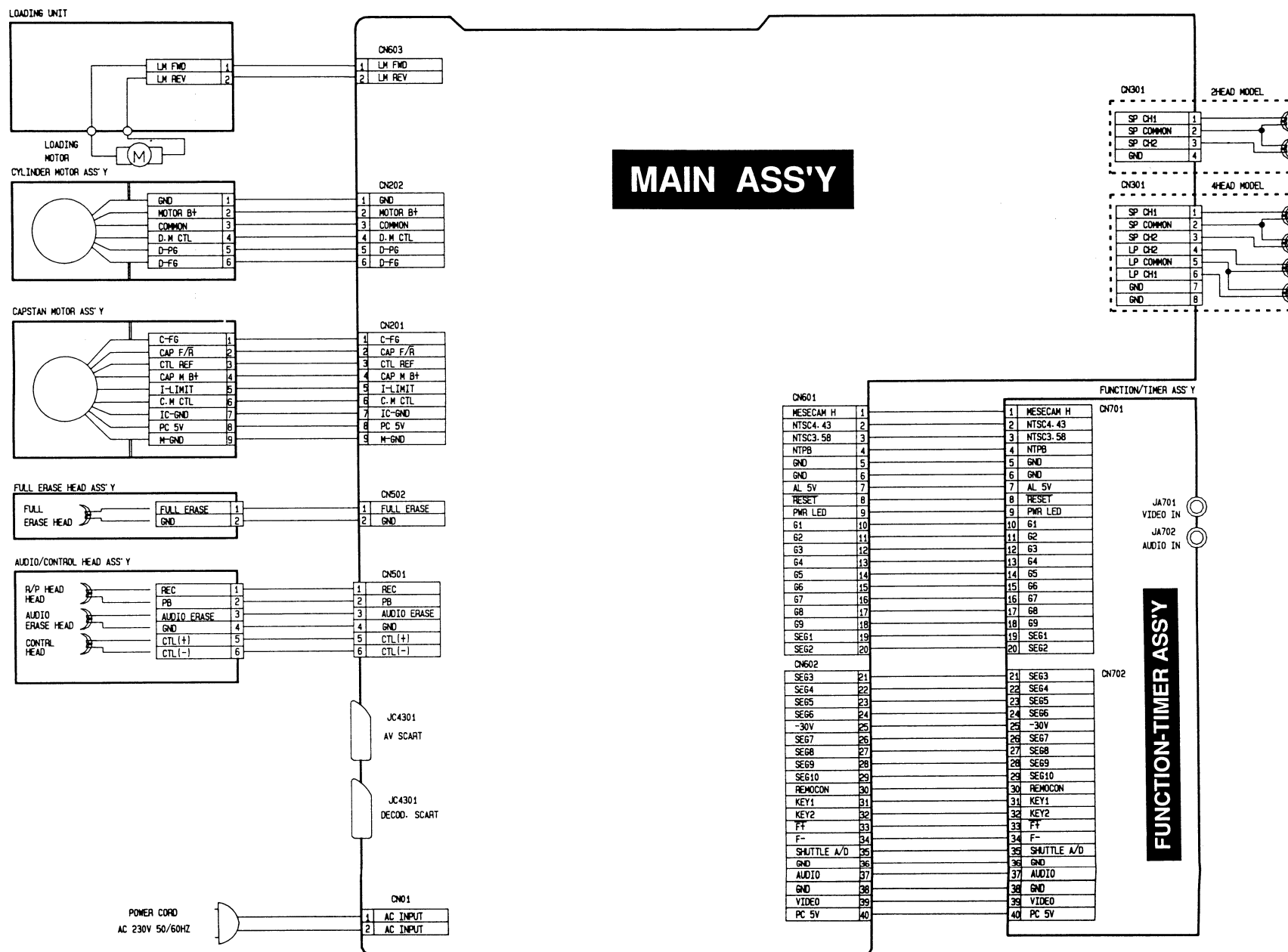
10-3. FUNCTION-TIMER (SV-40XK)



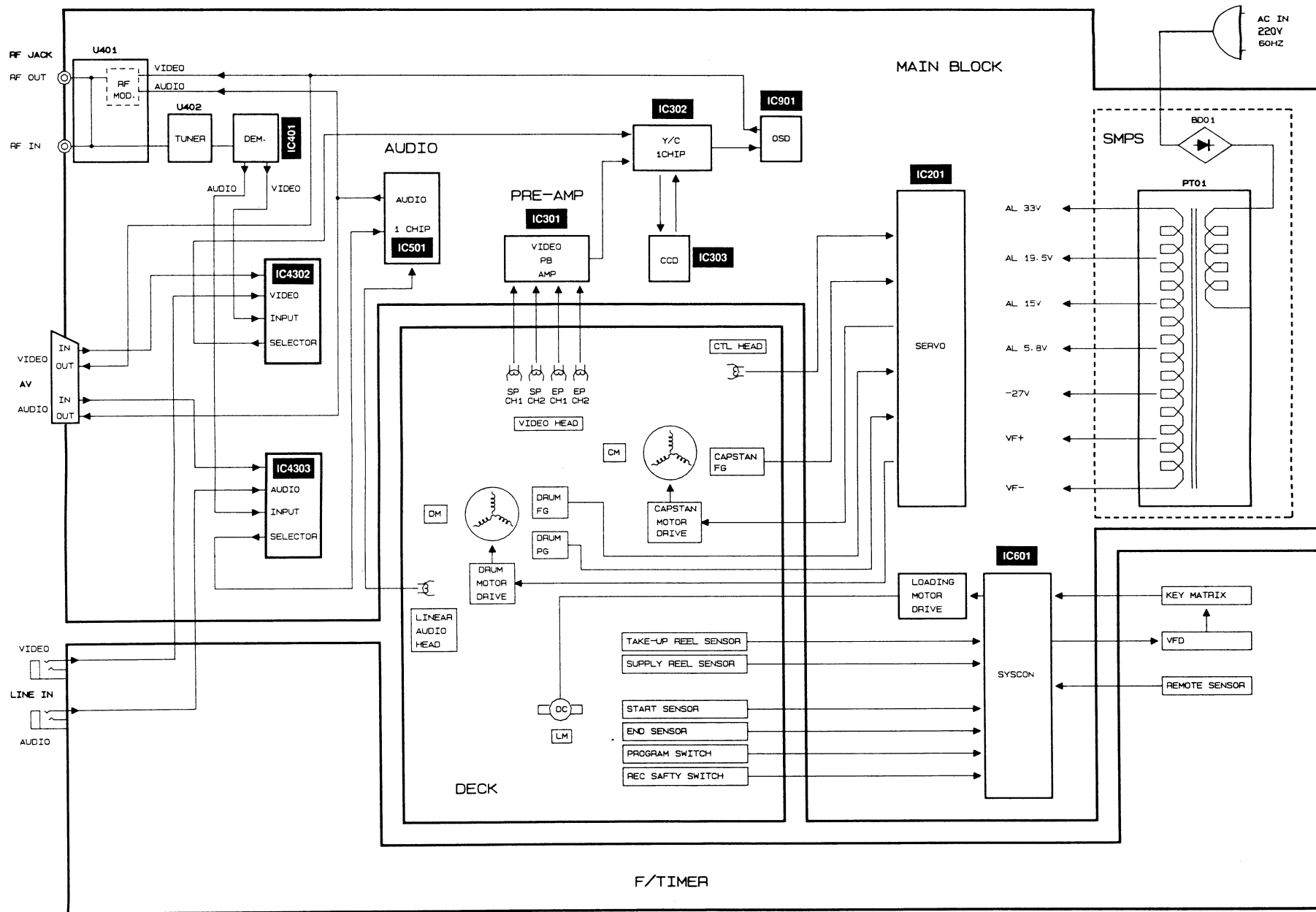
11. BLOCK DIAGRAMS

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11-6. O.S.D	11-7

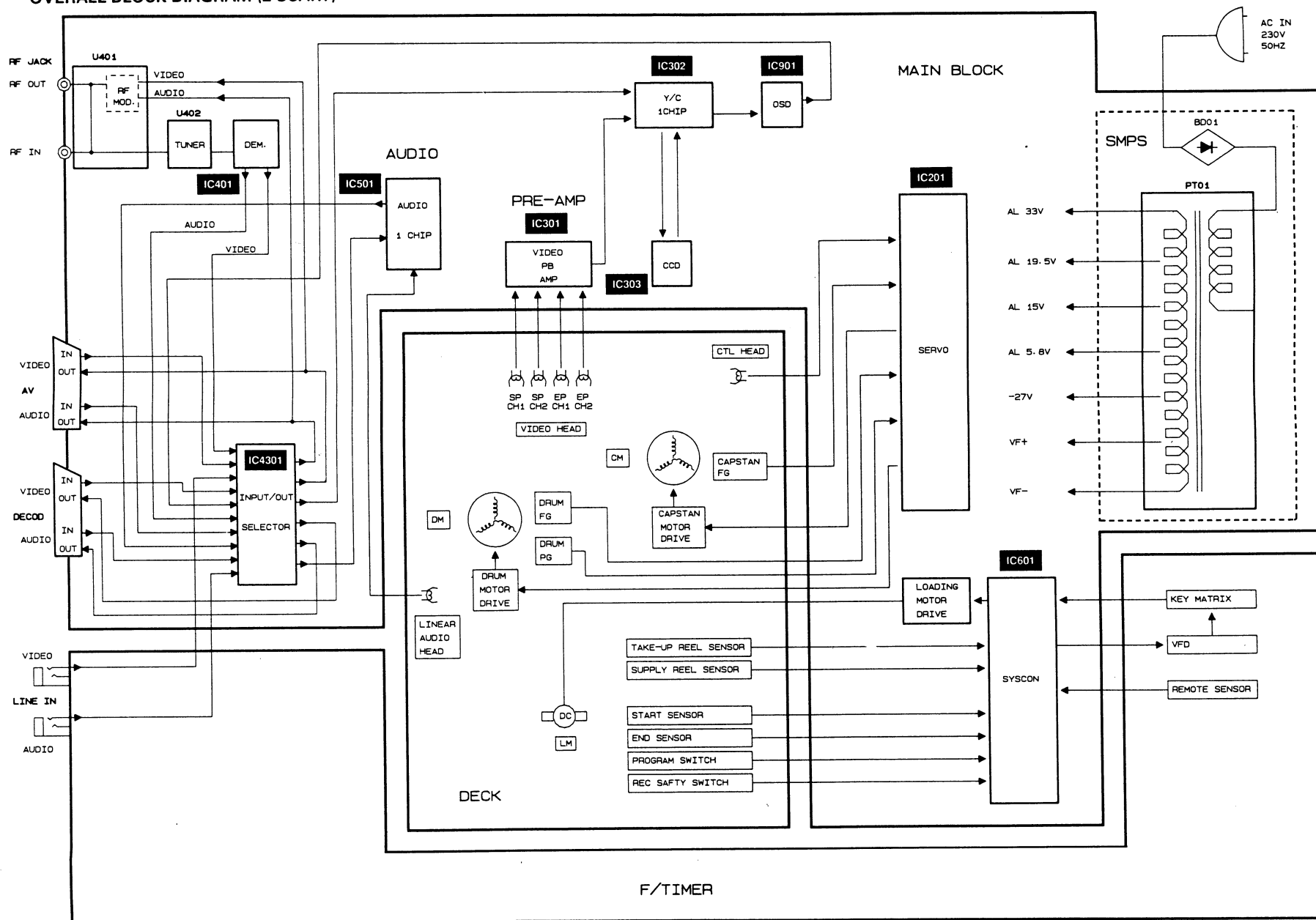
11-1. TOTAL WIRING DIAGRAM



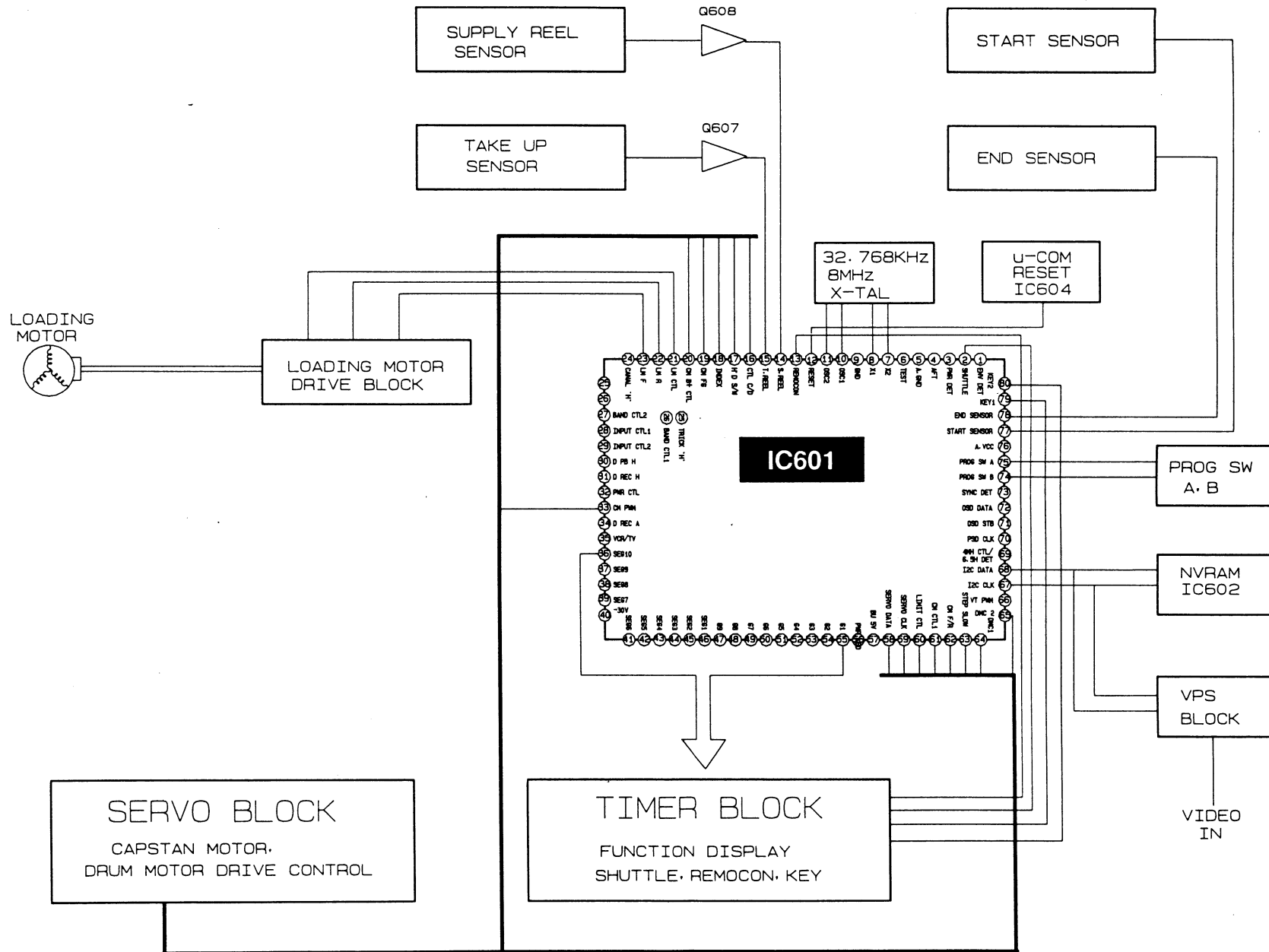
11-2. OVERALL BLOCK DIAGRAM (1 SCART)

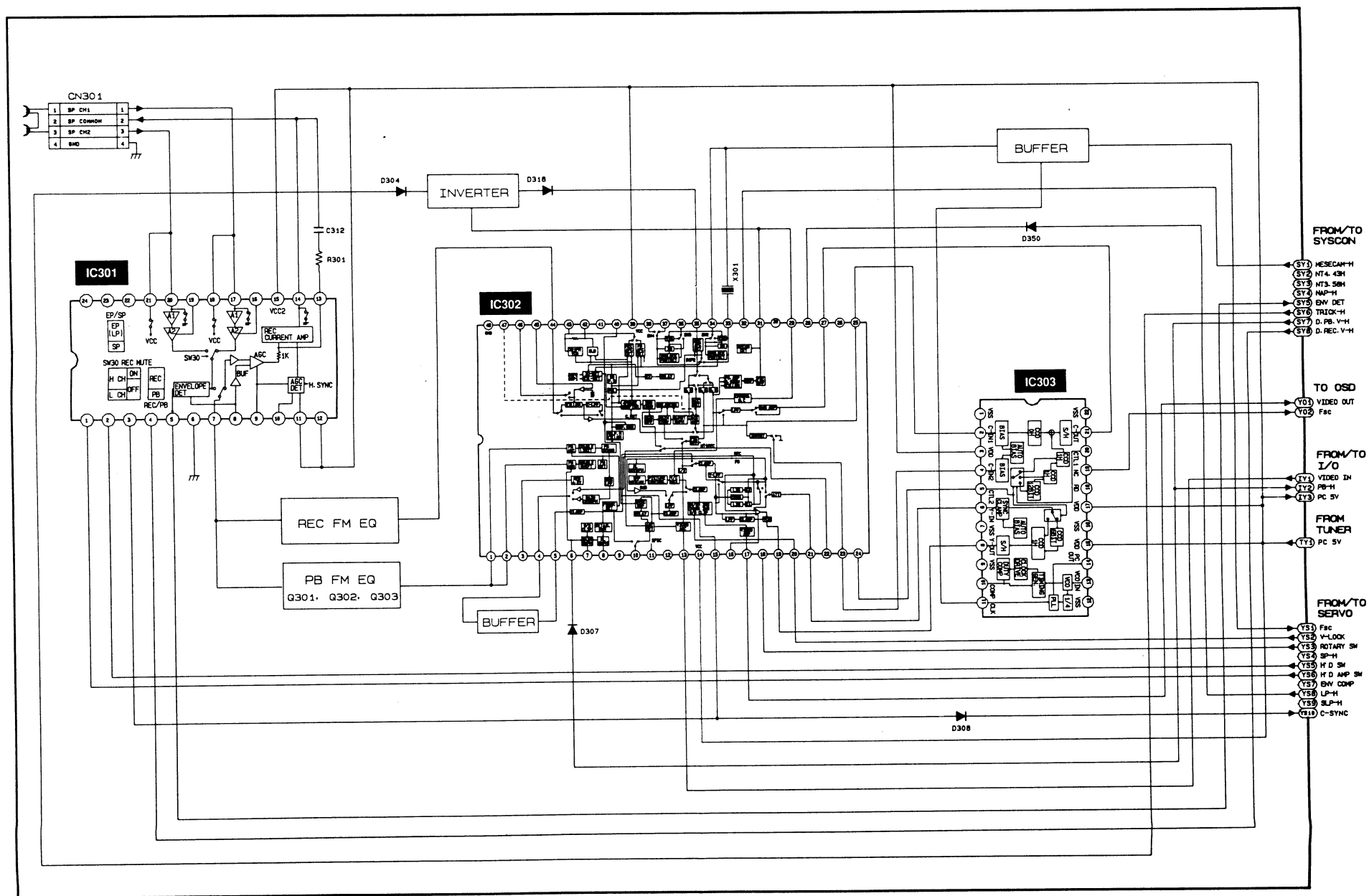


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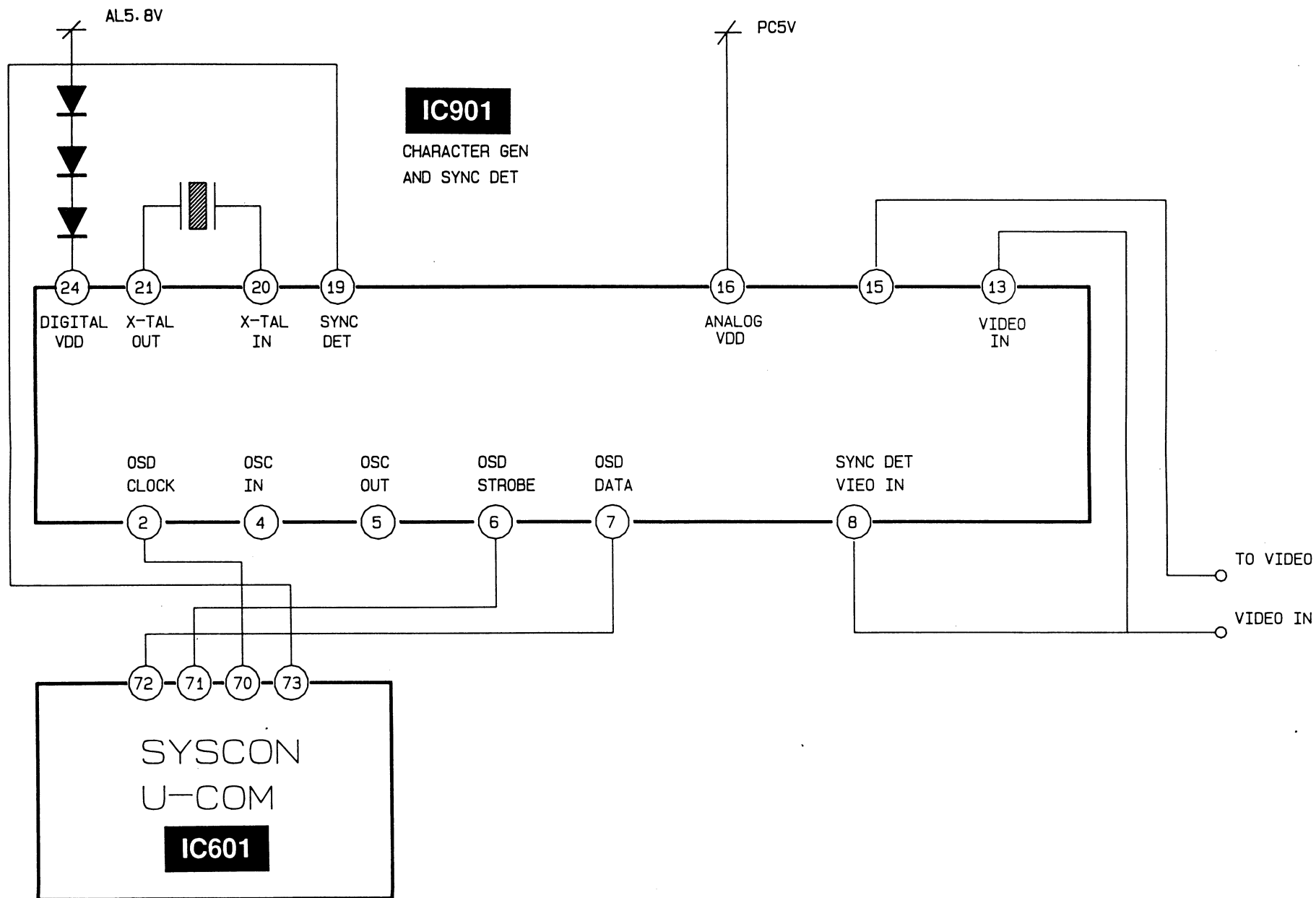


11-4. SYSTEM COTROL





11-6. O.S.D

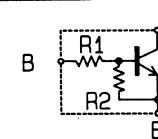


12. SCHEMATIC DIAGRAMS

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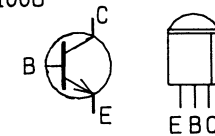
SEMICONDUCTOR

NPN TYPE

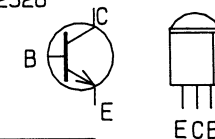


	R1	R2
KSR1001	4.7K	4.7K
KSR1002	10K	10K
KSR1004	47K	47K

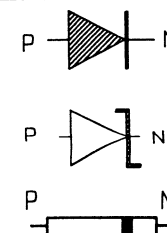
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KSC1008



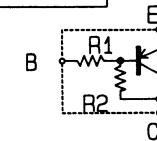
KSC2328



DIODE ZENER DIODE

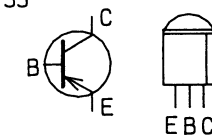


PNP TYPE

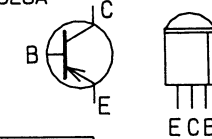


	R1	R2
KSR2001	4.7K	4.7K
KSR2002	10K	10K
KSR2004	47K	47K

2SD1468
KSA733

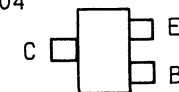


KSA928A



* CHIP TR

KSR2102
KSA928
KSR1104



NOTE

- For Schematic Diagram
 - Resistors are in ohms, 1/8W unless otherwise noted.
 - Circled numbers refer to waveforms.

SPECIAL NOTE :

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the 'electrostatically sensitive (ES) devices' section of this service manual.

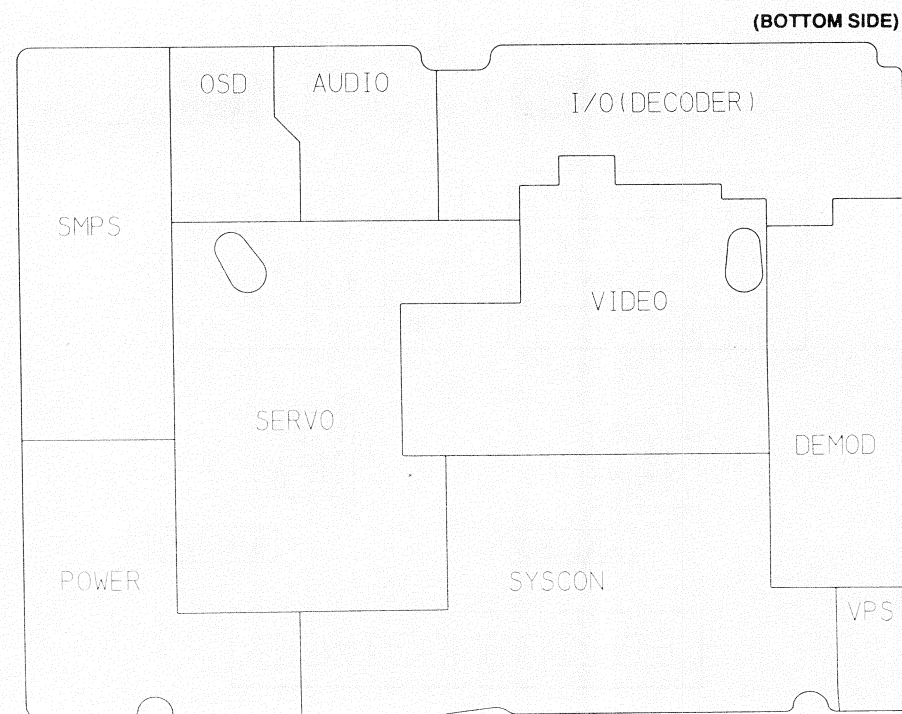
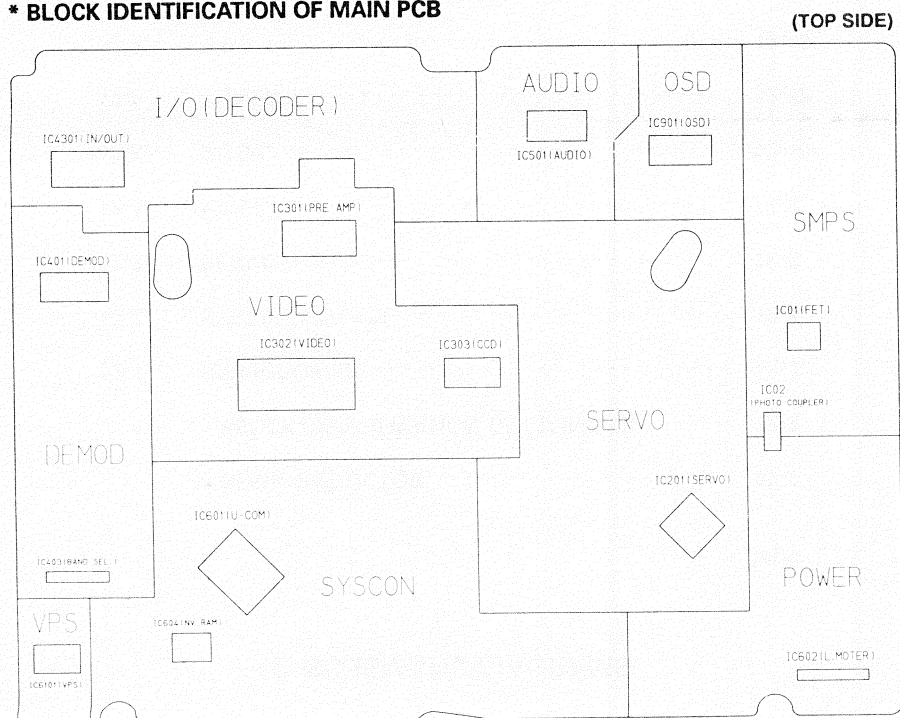
NOTE :

Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list. And may be slightly different or amended since this drawing was prepared.

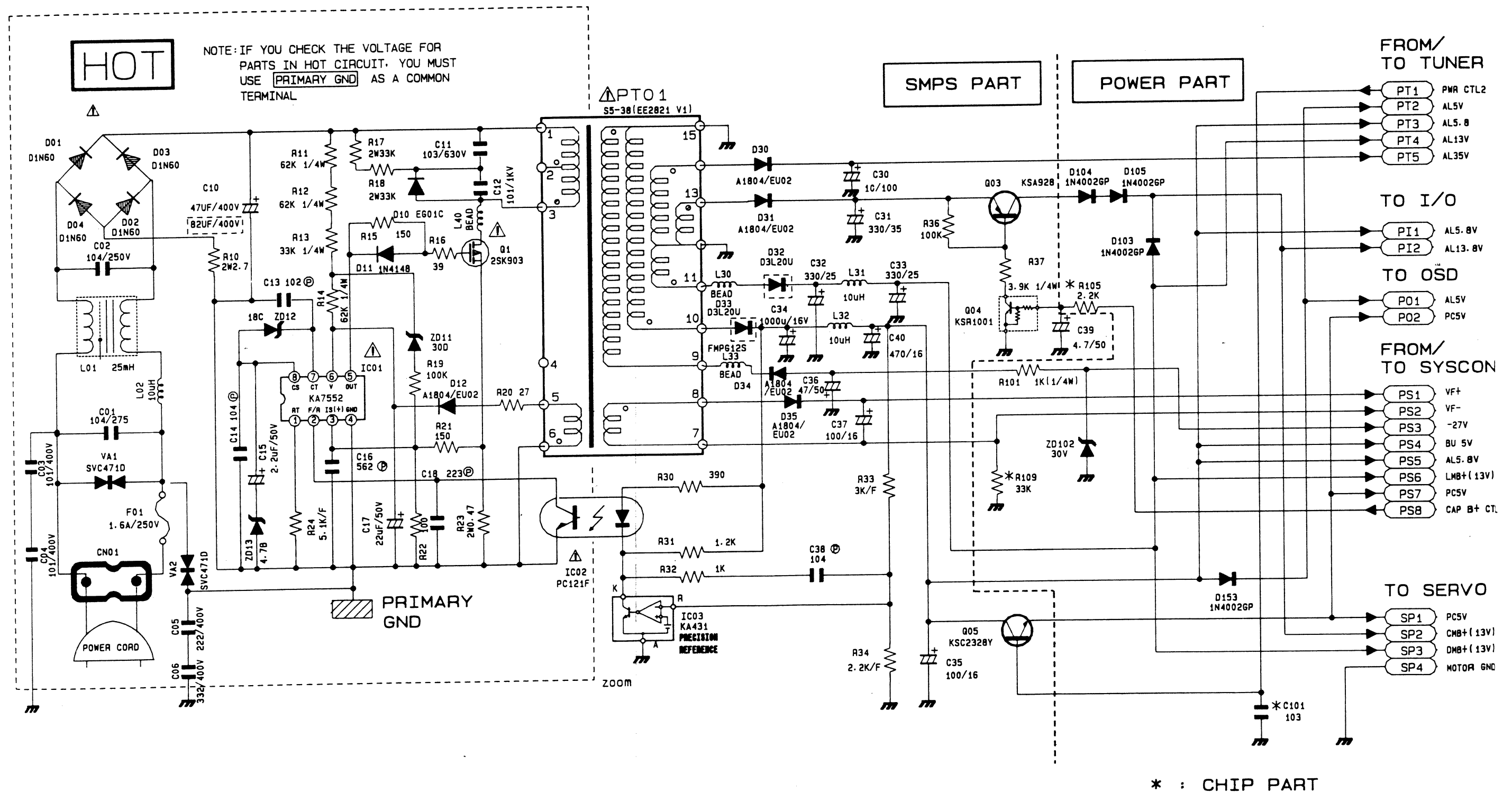
IMPORTANT SAFETY NOTICES :

Components identified with the mark have the special characteristics for safety when replacing any of these components. Use only the same type.

* BLOCK IDENTIFICATION OF MAIN PCB



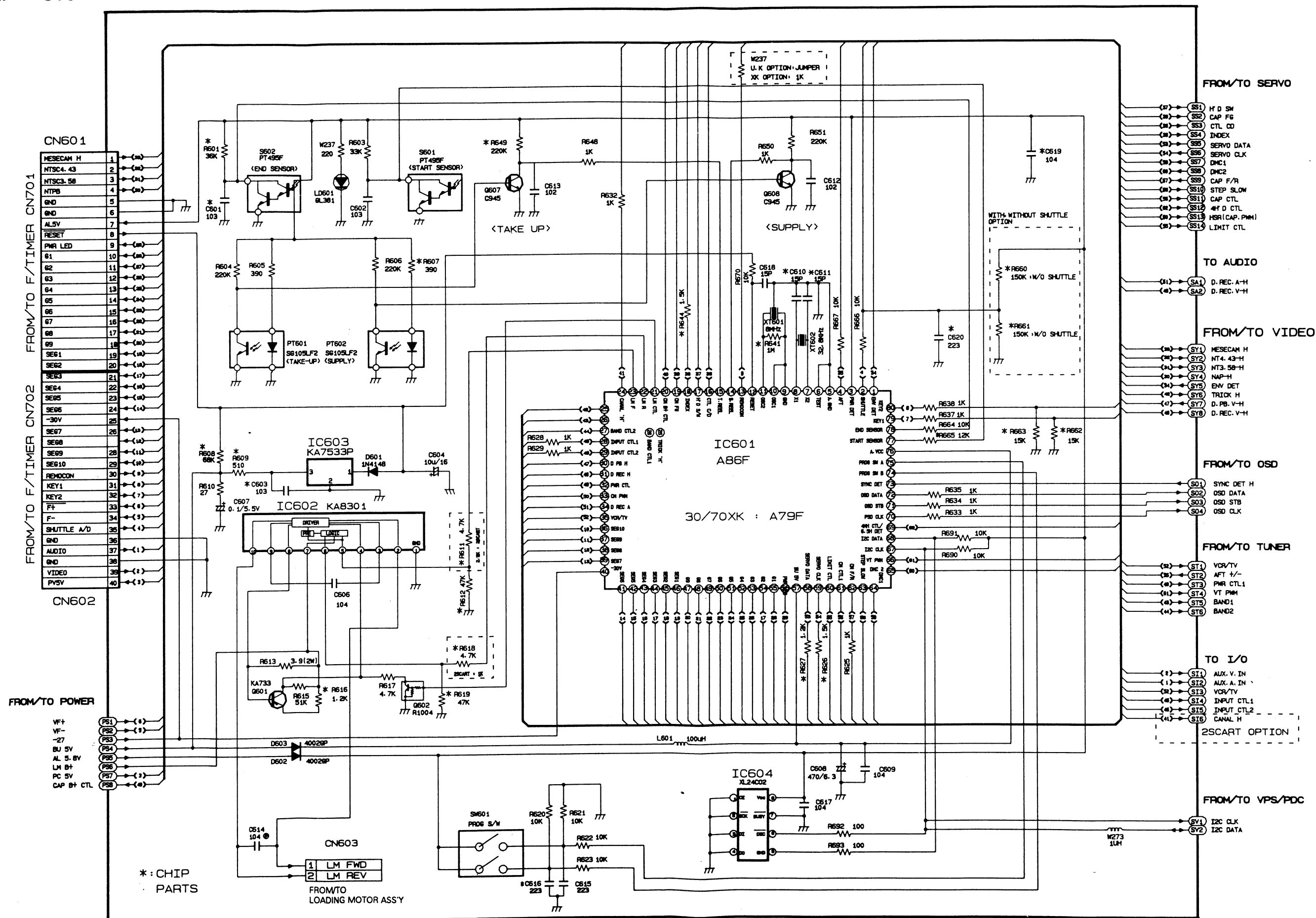
12-1. SMPS/POWER



SYSTEM CONTROL

12-2. SYSTEM CONTROL

SYSTEM CONTROL



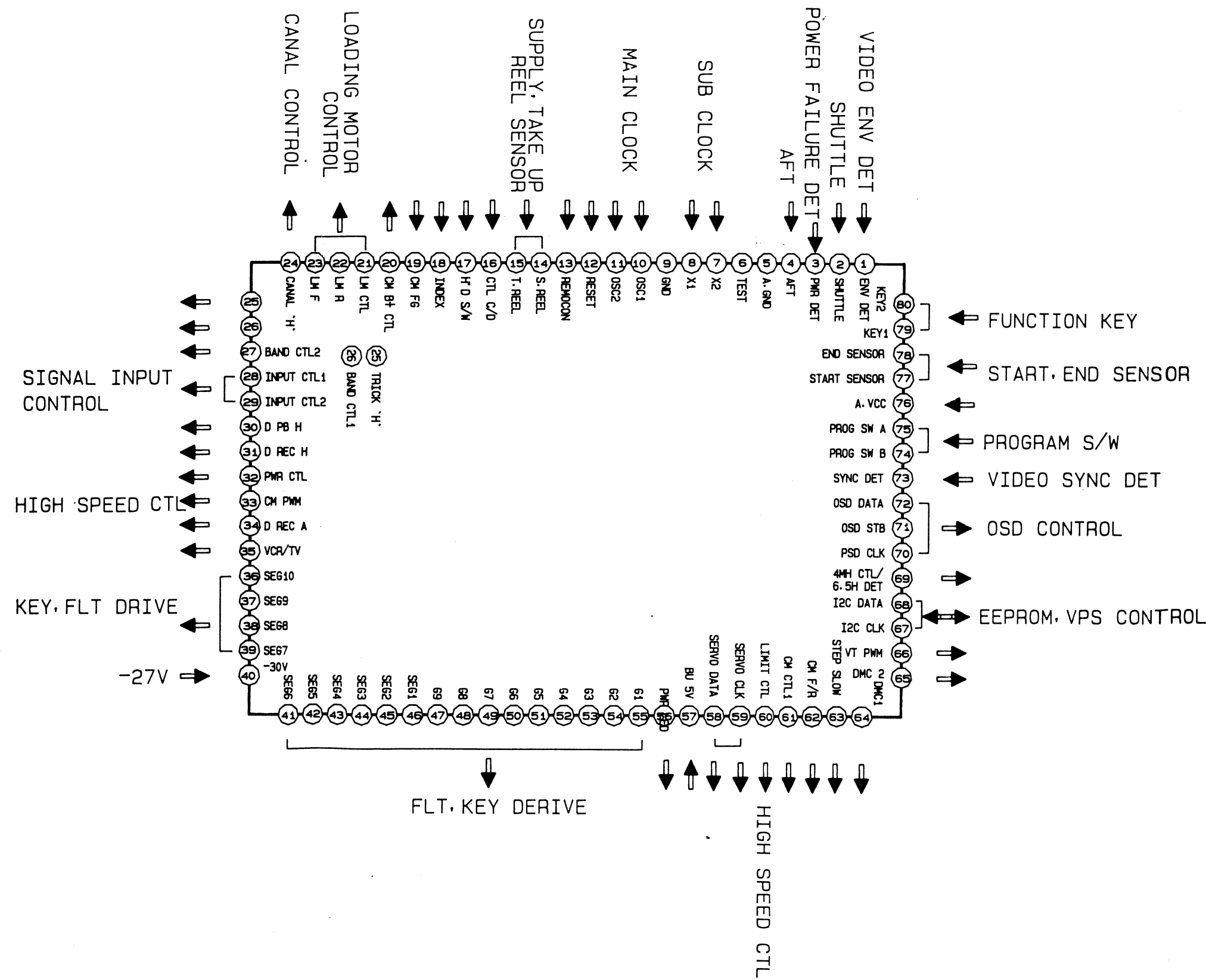
SYSTEM CONTROL

MODE PIN NO	STOP	REC	PLAY
IC601			
1	2.3	0	2.6
2	2.6	2.6	2.6
3	0.2	5.0	5.0
4	5.0	4.6	4.6
5	0	0	0
6	0	0	0
7	1.5	2.4	2.4
8			
9	0	0	0
10	3.8	3.8	3.8
11	4.4	4.4	4.4
12	4.0	5.0	5.0
13	5.0	5.0	5.0
14	4.6	5.0	5.0
15	0	5.0	5.0
16	4.9	5.0	5.0
17	5.0	5.0	5.0
18	5.0	5.0	5.0
19	0	5.0	5.0
20	0	0	0
21	4.8	4.8	4.8
22	4.6	4.8	4.8
23	4.6	4.8	4.8
24	0	0	0
25	0	0	0
26	0	0	0
27	5.0	5.0	5.0
28	5.0	5.0	5.0
29	0	0	0
30	0.2	0.2	5.0
31	0	4.8	0
32	5.0	5.0	5.0
33	4.8	4.8	4.8
34	0	5.0	0
35	5.0	5.0	5.0
36	-27.0	-27.0	-27.0
37	-27.0	-27.0	-27.0
38	-27.0	-27.0	-27.0
39	-27.0	-27.0	-27.0
39	-27.0	-27.0	-27.0
40	-27.0	-27.0	-27.0
41	-27.0	-27.0	-27.0
42	-27.0	-27.0	-27.0
43	-27.0	-27.0	-27.0
44	-27.0	-27.0	-27.0
45	-27.0	-27.0	-27.0

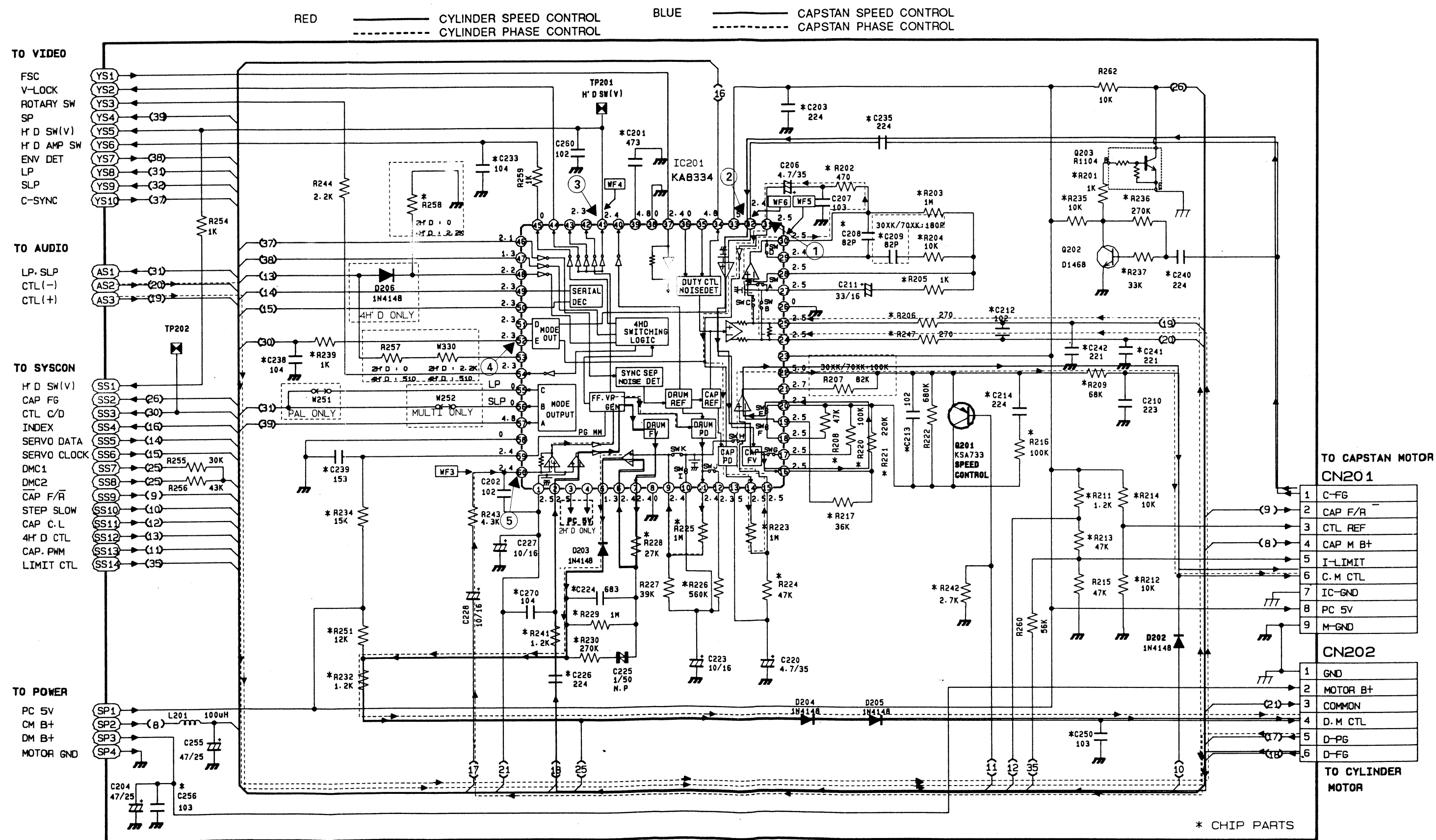
MODE PIN NO	STOP	REC	PLAY
46	-27.0	-27.0	-27.0
47	-27.0	-27.0	-27.0
48	-27.0	-27.0	-27.0
49	-27.0	-27.0	-27.0
50	-27.0	-27.0	-27.0
51	-27.0	-27.0	-27.0
52	-27.0	-27.0	-27.0
53	-27.0	-27.0	-27.0
54	-27.0	-27.0	-27.0
55	-27.0	-27.0	-27.0
56	5.0	5.0	5.0
57	5.0	5.0	5.0
58	5.0	5.0	5.0
59	5.0	5.0	5.0
60	2.4	2.4	2.4
61	0.2	4.9	4.9
62	4.9	4.9	4.9
63	0	0	0
64	2.2	2.2	2.2
65	2.2	2.2	2.2
66	5.0	5.0	5.0
67	5.0	5.0	5.0
68	5.0	5.0	5.0
69	0	0	0
70	4.9	4.9	4.9
71	4.9	4.9	4.9
72	5.0	5.0	5.0
73	5.0	0	0
74	4.9	0	0
75	4.9	4.9	4.9
76	5.0	5.0	5.0
77	4.8	4.8	4.8
78	5.0	5.0	5.0
79	4.4	4.4	4.4
80	4.4	4.4	4.4

SYSTEM CONTROL

IC601 HD6433726



12-3. SERVO



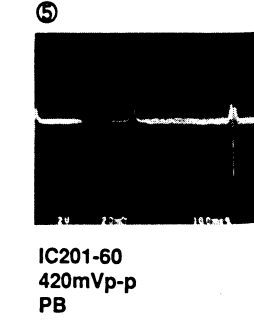
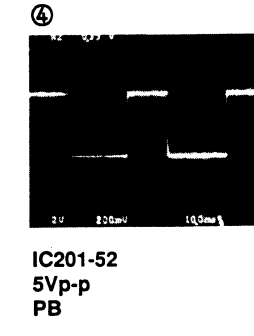
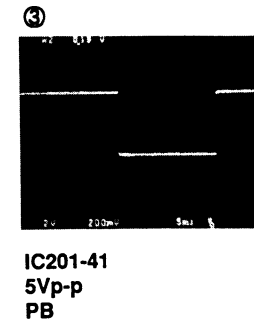
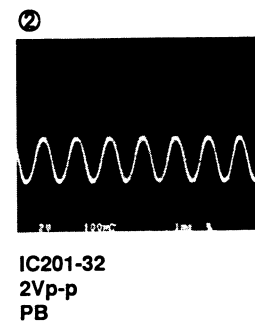
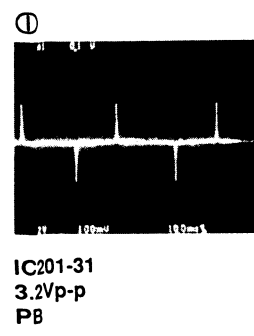
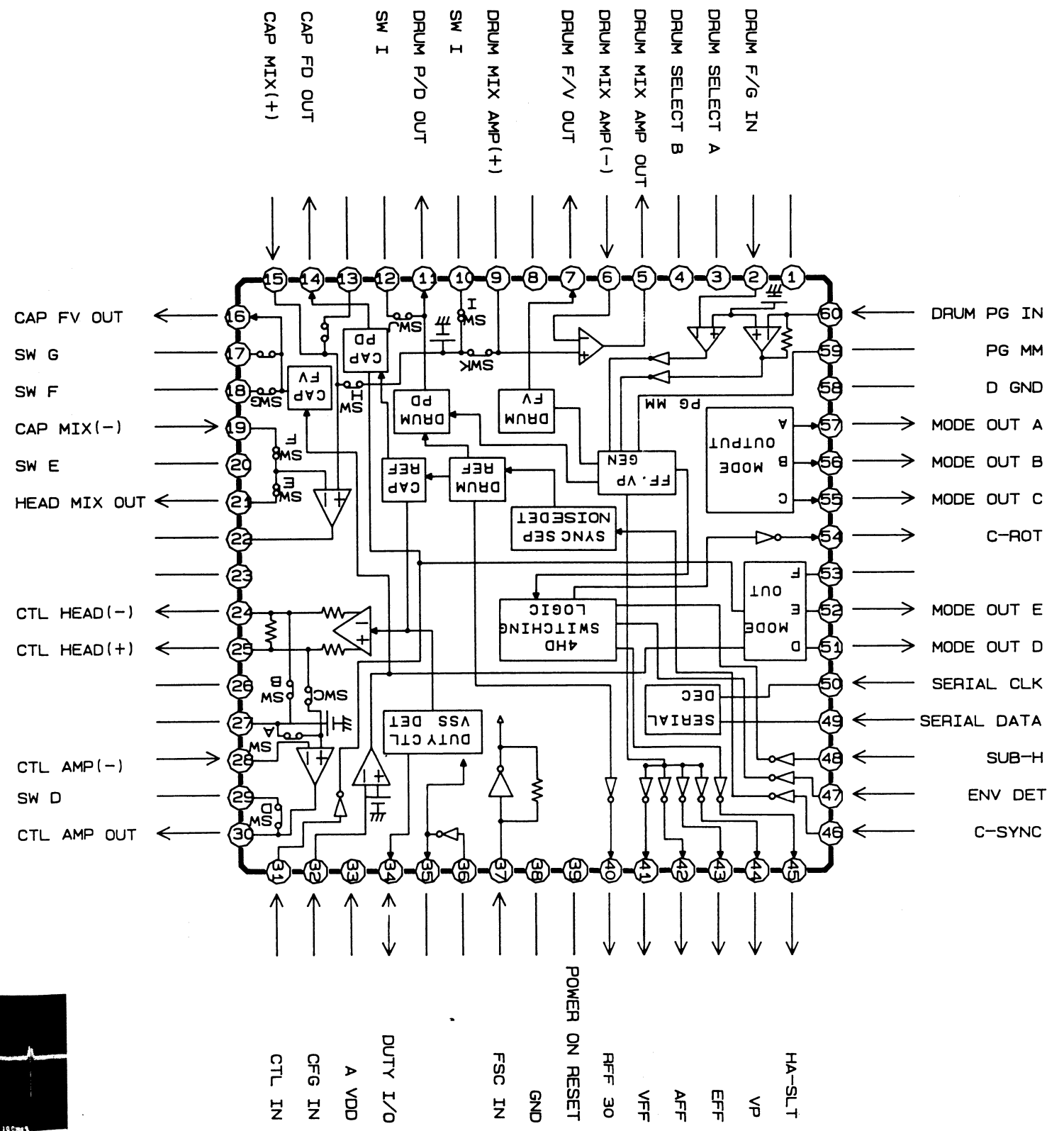
SERVO

SERVO

MODE PIN NO	STOP	REC	PLAY
IC201			
1	2.5	2.4	2.5
2	2.5	2.5	2.5
3	2.5	2.5	2.5
4	2.5	2.5	2.5
5	1.6	1.6	1.6
6	2.5	2.5	2.5
7	2.5	2.5	2.5
8	0	0	0
9	2.5	2.5	2.5
10	1.8	0.2	0
11	2.5	2.5	2.5
12	2.3	2.3	2.3
13	5.0	5.0	5.0
14	5.0	2.5	2.5
15	2.5	2.5	2.5
16	0	0	2.5
17	0.8	2.5	2.5
18	0.1	2.5	2.5
19	1.1	2.5	2.5
20	5.0	2.6	2.6
21	5.0	2.6	2.6
22	5.0	5.0	5.0
23	0	0	0
24	2.5	2.5	2.2
25	2.5	2.8	2.8
26	0	0	0
27	2.5	2.5	2.5
28	2.5	2.5	2.5
29	2.5	2.5	2.5
30	2.5	2.5	2.5
31	2.5	2.5	2.5
32	2.5	2.5	2.5

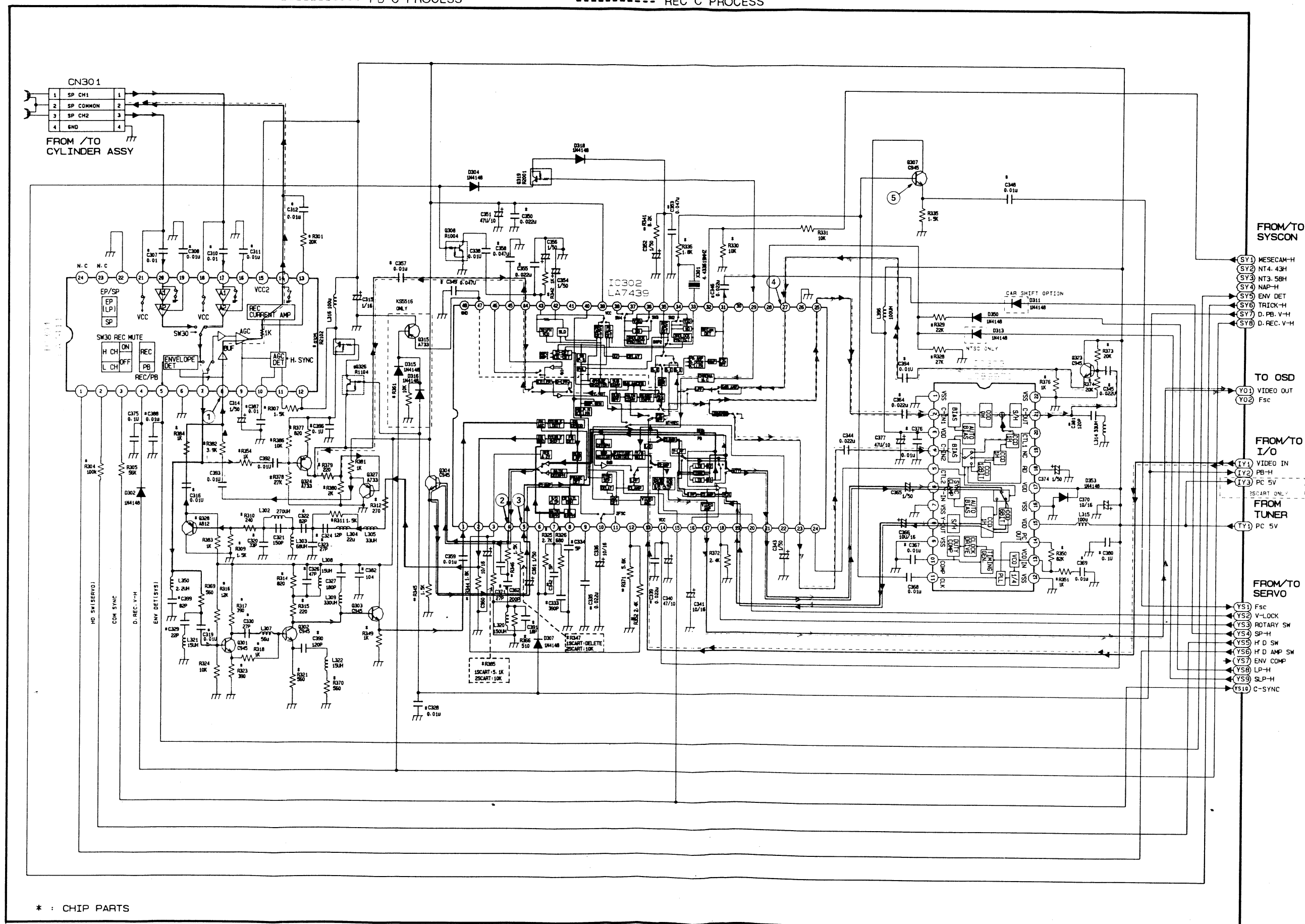
MODE PIN NO	STOP	REC	PLAY
33	5.0	5.0	5.0
34	5.0	3.0	2.0
35	5.0	5.0	0
36	0	0	0
37	2.4	2.4	2.4
38	0	0	0
39	4.9	4.9	4.9
40	2.5	2.5	2.5
41	2.4	2.4	2.4
42	2.4	0	2.4
43	2.4	2.4	2.4
44	0	0	0
45	4.9	0	0
46	2.7	2.7	0.7
47	0.8	0.8	0
48	0.9	0.9	0.9
49	0.6	0.6	0.6
50	0.7	0.7	0.7
51	0	2.3	2.3
52	4.9	4.9	1.9
53	0	0	0
54	2.3	2.3	2.3
55	0	0	0
56	0	0	0
57	4.8	0	4.8
58	0	0	0
59	0	0.3	0.3
60	2.4	2.4	2.4

IC201 KA8334



12-4. VIDEO

RED ——— PB Y PROCESS ——— BLUE ——— REC Y PROCESS
 - - - - - PB C PROCESS - - - - - REC C PROCESS



VIDEO

VIDEO

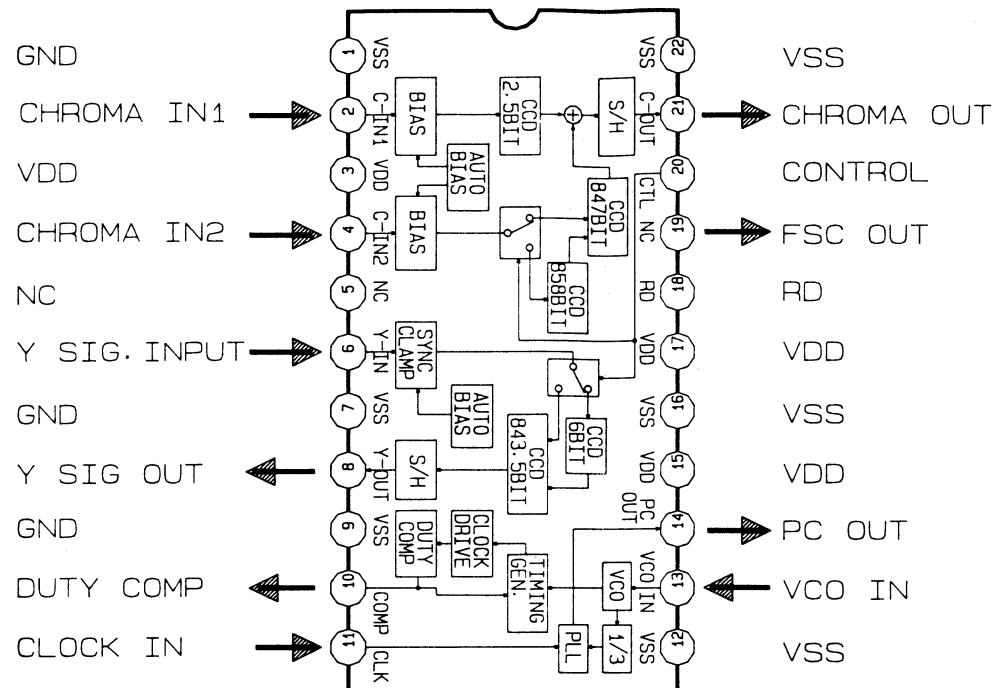
MODE PIN NO	E/E	PLAY	REC
IC302			
1	5.0	3.6	3.0
2	2.4	3.6	2.5
3	4.2	4.2	4.2
4	2.1	2.6	2.1
5	2.8	3.0	2.8
6	1.8	4.8	2.8
7	2.0	4.3	2.0
8	2.6	2.8	2.6
9	2.5	2.5	2.5
10	1.4	1.5	1.5
11	2.0	2.0	2.1
12	2.9	2.9	2.9
13	2.6	3.1	2.6
14	5.0	5.0	5.0
15	0.2	0.1	0.1
16	3.1	3.1	3.1
17	0.8	0.9	0.9
18	2.5	0	2.5
19	2.0	2.0	2.0
20	0	0	0
21	1.0	1.0	1.0
22	2.2	2.2	2.2
23	2.5	2.1	2.3
24	0	0	0
25	2.5	2.2	2.4
26	0	0	0
27	2.5	2.4	2.5
28	0.8	2.5	0.8
29	1.9	1.8	1.9
30	0	0	0
31	0	2.4	0
32	0	0.4	0.4
33	3.6	3.6	3.6
34	2.5	2.4	2.5
35	0	2.0	2.2
36	0	0	0
37	0	0	0
38	0	0	0
39	5.0	5.0	5.0
40	0.1	0.1	0.1
41	0	0	0
42	2.8	2.8	2.8
43	2.8	2.8	2.8
44	2.3	3.2	2.2
45	2.0	2.0	2.0
46	0	0	0
47	1.8	1.2	1.8
48	0	0	0

MODE PIN NO	E/E	PLAY	REC
IC301			
1	5.0	5.0	5.0
2	1.8	1.8	1.8
3	0.2	0.2	2.7
4	0	0	4.6
5	0.7	4.7	0
6	0	0	0
7	2.2	2.2	3.6
8	0	0	3.6
9	0	0	1.6
10	2.6	2.6	1.6
11	5.0	5.0	4.2
12	5.0	5.0	5.0
13	0.1	0.1	1.6
14	0	0	4.0
15	5.0	5.0	5.0
16	2.1	2.1	3.7
17	0.7	0.7	0.1
18	0	0	4.1
19	2.0	2.0	3.6
20	0.6	0.6	0.1
21	0	0	4.0
22	0	0	0
23	0	0	0
24	0	0	0

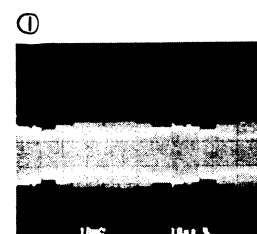
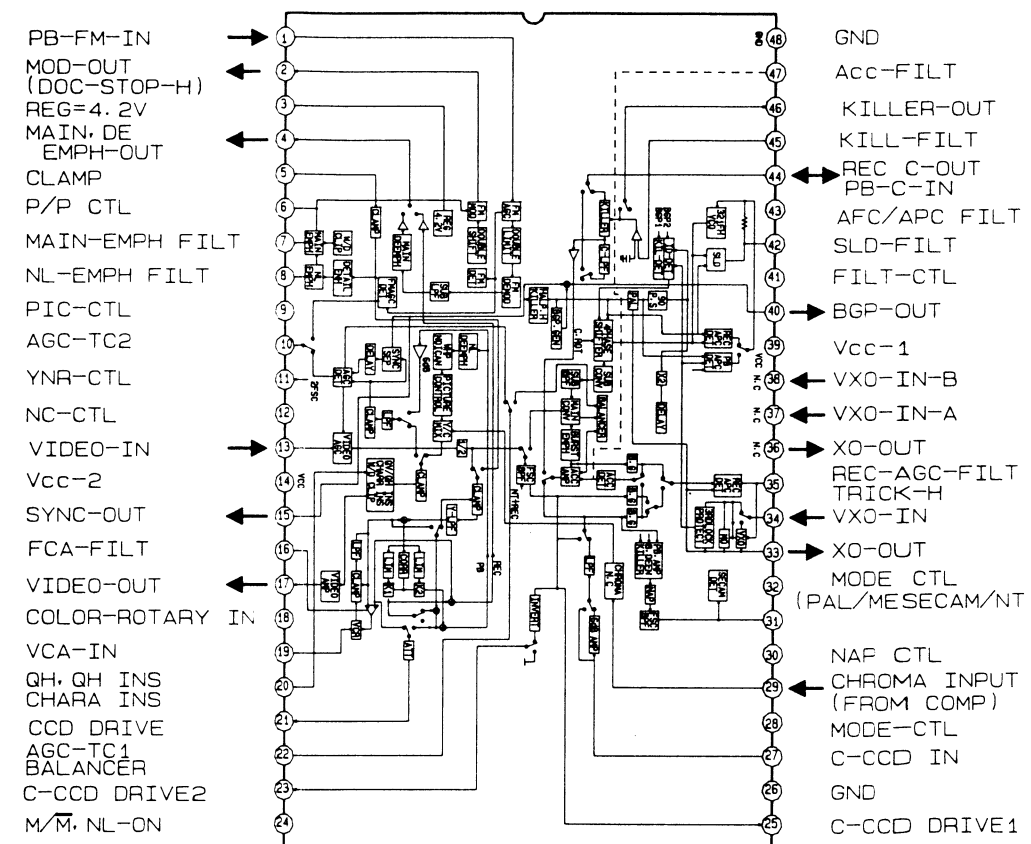
MODE PIN NO	E/E	PLAY	REC
IC303			
1	0	0	0
2	2.2	2.0	2.2
3	5.0	5.0	5.0
4	2.2	2.0	2.2
5	0	0	0
6	2.2	2.2	2.2
7	0	0	0
8	1.0	1.0	1.0
9	0	0	0
10	0	2.3	2.3
11	1.0	1.0	1.0
12	0	0	0
13	2.0	2.0	2.0
14	2.0	2.0	2.0
15	5.0	5.0	5.0
16	0	0	0
17	5.0	5.0	5.0
18	8.5	8.5	8.5
19	3.2	3.2	3.2
20	0	0	0
21	1.2	1.0	1.2
22	0	0	0

MODE PIN NO	E/E	PLAY	REC
Q301			
E	1.4	1.4	1.4
C	3.4	3.4	3.4
B	2.1	2.1	2.1
Q302			
E	0.7	0.7	0.7
C	4.6	4.6	4.6
B	1.4	1.4	1.4
Q303			
E	4.0	4.0	4.0
C	5.0	5.0	5.0
B	4.6	4.6	4.6
Q304			
E	1.4	2.0	1.4
C	5.0	5.0	5.0
B	2.1	3.0	2.1
Q315			
E	5.0	5.0	5.0
C	5.0	3.6	3.0
B	0.7	4.3	4.3

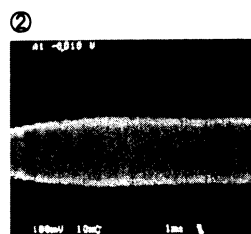
IC303 LC89970



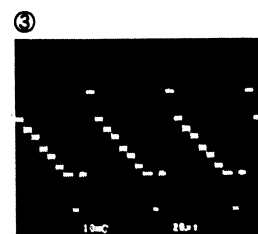
IC302 LA7439



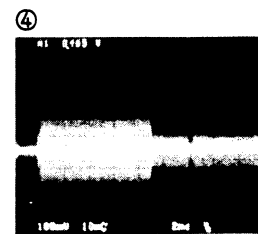
IC301-8
280mVp-p
REC



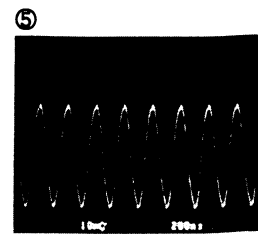
IC302-4
300mVp-p
PLAY



IC302-5
500mVp-p
REC



IC302-27
260mVp-p
PB



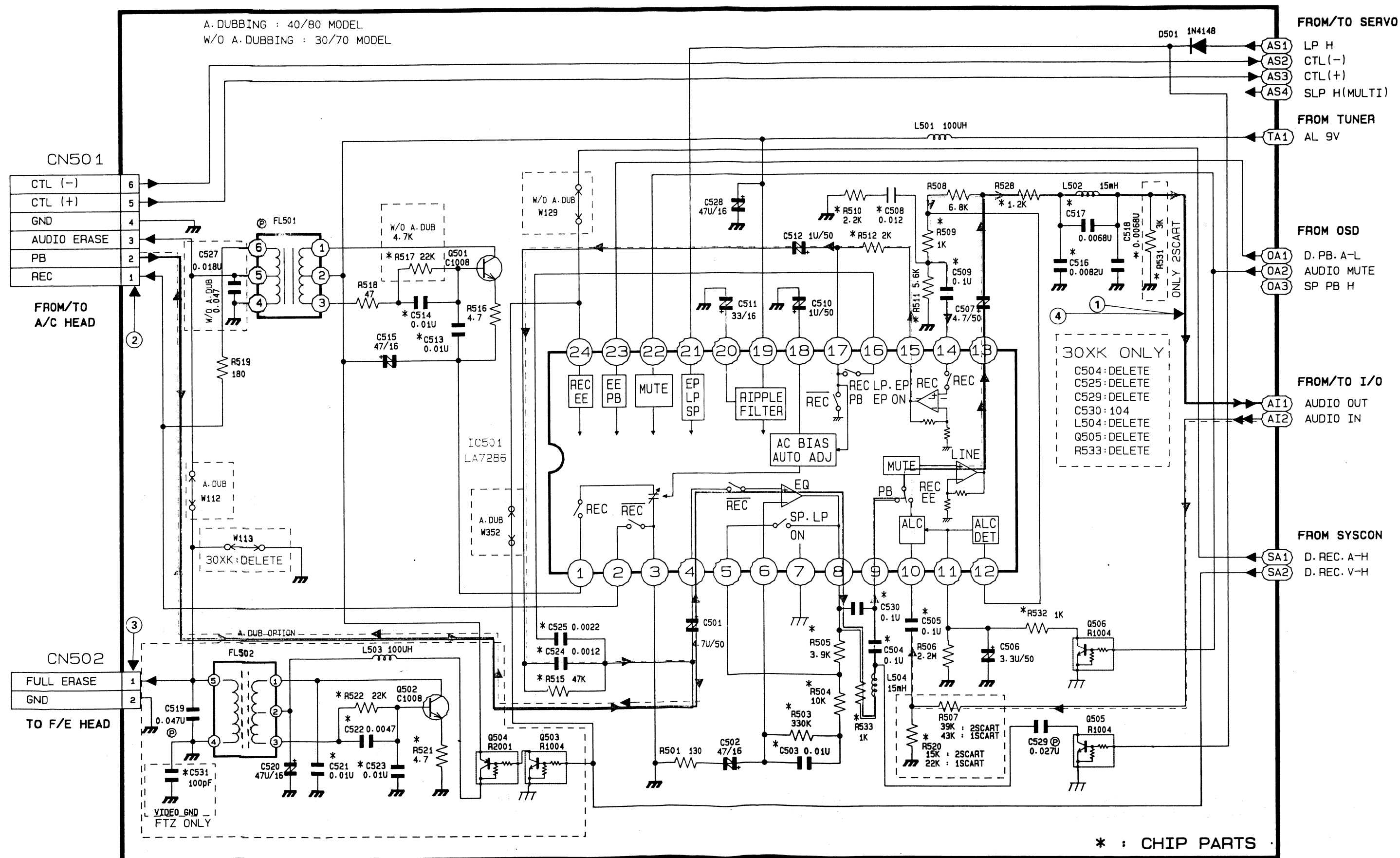
Q307-Emitter
420mVp-p
E/E, PB, REC

AUDIO

12-5. AUDIO

RED ——— PB PROCESS
 ----- REC PROCESS

A. DUBBING : 40/80 MODEL
 W/O A. DUBBING : 30/70 MODEL

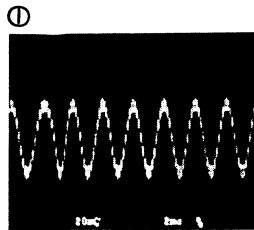
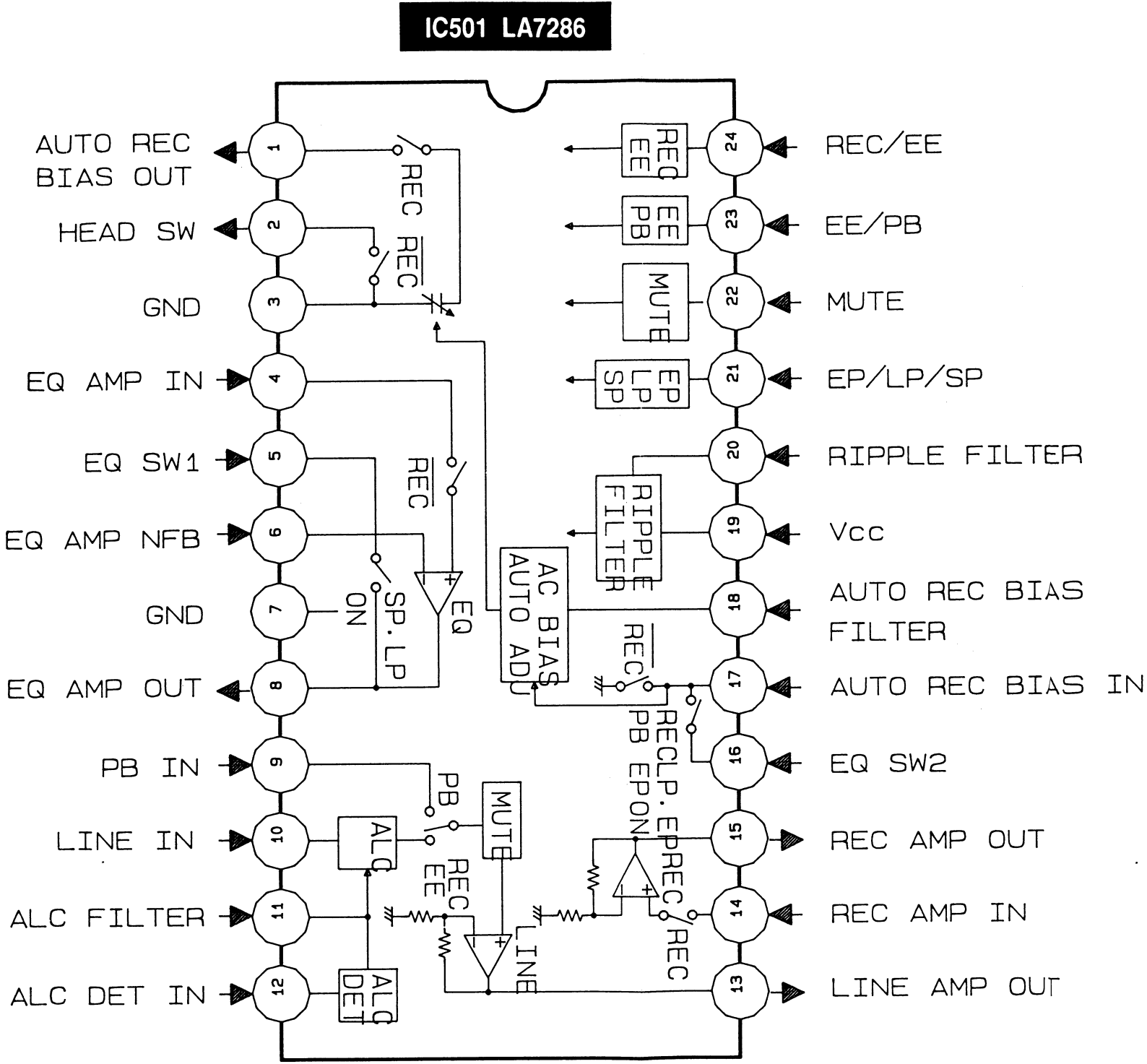


AUDIO

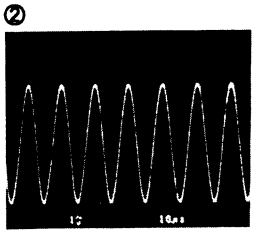
MODE PIN NO	STOP	REC	PLAY
IC501			
1	9.0	4.0	9.0
2	0	0	0
3	0	0	0
4	4.0	4.0	4.0
5	4.0	4.0	4.0
6	4.0	4.0	4.0
7	0	0	0
8	4.0	4.0	4.0
9	4.0	4.0	4.0
10	4.0	4.0	4.0
11	0.5	0.5	0
12	0	0	0
13	4.0	4.0	4.0
14	4.0	4.0	4.0
15	4.0	4.0	4.0
16	0	4.0	0
17	4.0	4.0	4.0
18	0	0.8	0
19	9.0	9.0	9.0
20	9.0	9.0	9.0
21	0	0	0
22	0.8	0.8	0.8
23	4.5	4.5	0.8
24	0	5.0	0

MODE PIN NO	STOP	REC	PLAY
Q501			
E	9.0	4.0	9.0
B	9.0	2.5	9.0
C	9.0	8.9	9.0
Q502			
E	0	0	0
B	0.3	0	0.3
C	0.3	8.7	0.3
Q503			
E	0	0	0
B	0	4.9	0
C	9.0	0	9.0
Q504			
E	8.9	8.9	8.9
B	8.9	0	8.9
C	0.2	8.8	0.2
Q505			
E	0	0	0
B	0	0	0
C	0	0	0
Q506			
E	0	0	0
B	0.8	0.8	0.8
C	0.5	0.5	0

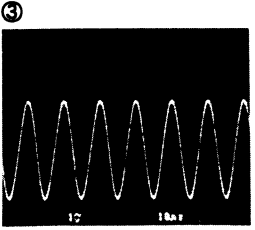
AUDIO



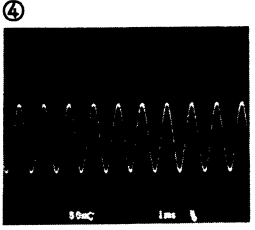
R531-Audio Out
0.7Vp-p
PB



CN501-1
50Vp-p
REC



CN502-1
40Vp-p
REC

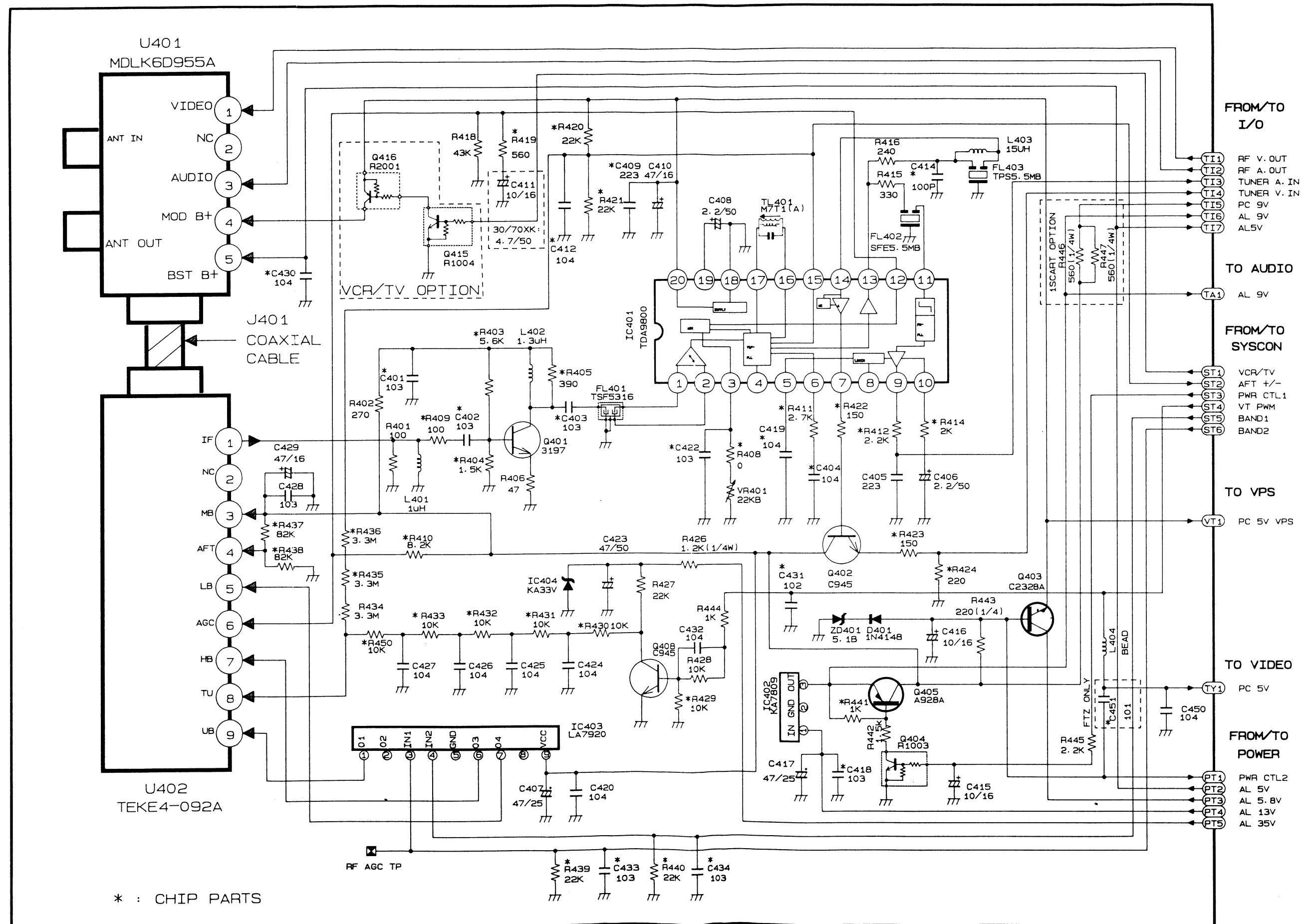


R531-Audio Out
1.45Vp-p
E/E, REC

TUNER

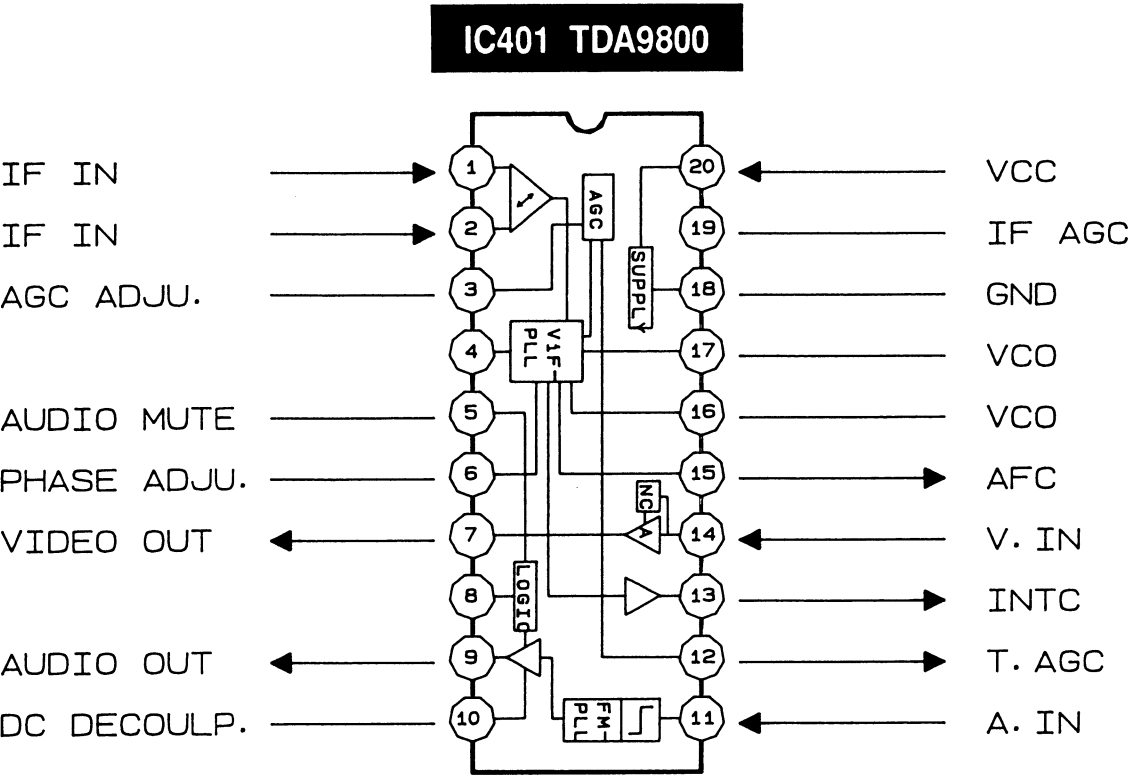
TUNER

12-6. TUNER



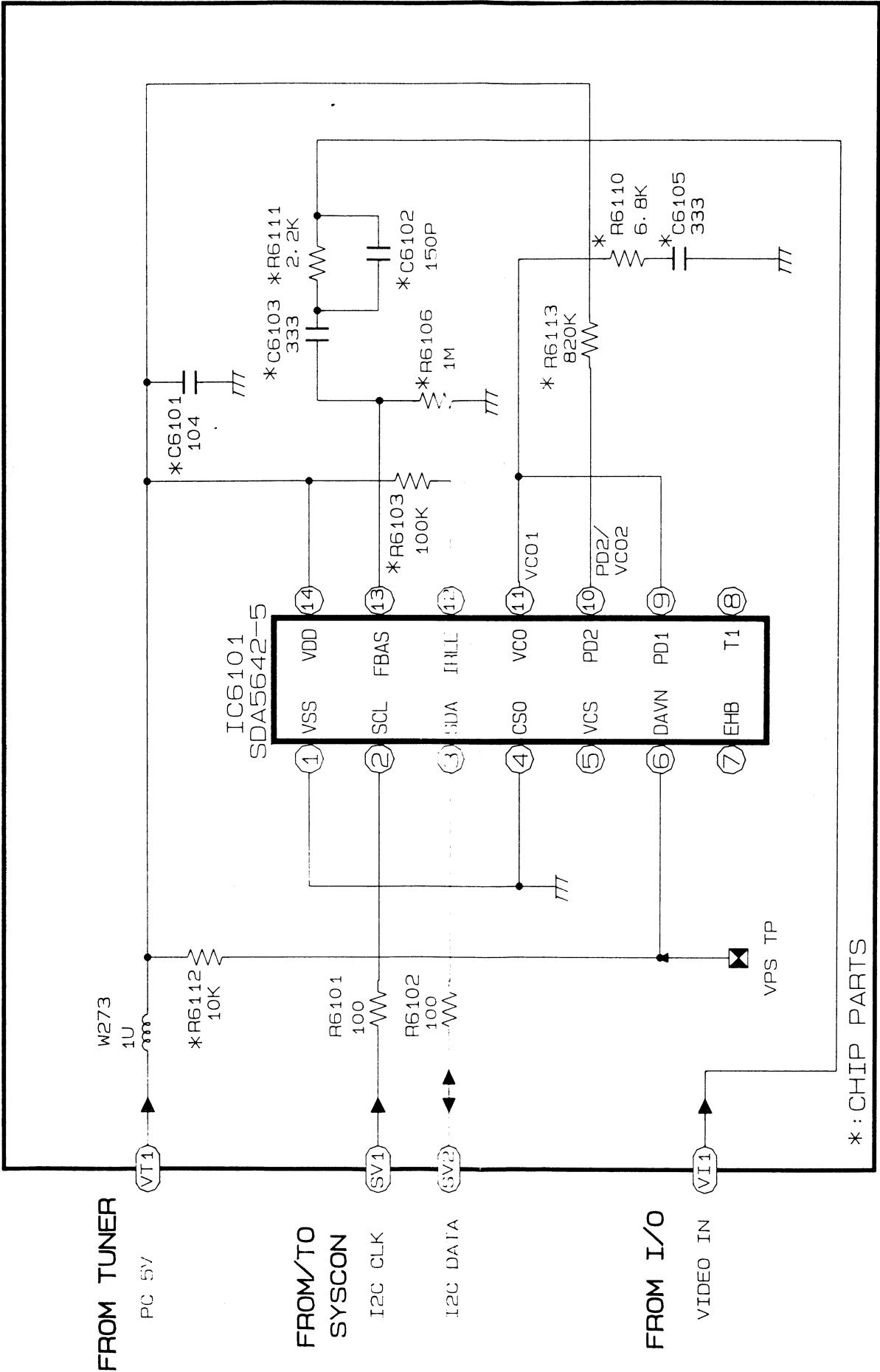
TUNER

MODE PIN NO	E-E
IC401	
1	3.3
2	3.3
3	0.8
4	1
5	3.1
6	2.6
7	2.4
8	0.8
9	1.8
10	1.5
11	2.6
12	4.2
13	2
14	2
15	2.6
16	2.8
17	2.8
18	0
19	3.2
20	5
Q401	
E	0.5
B	1.2
C	6.1
Q402	
E	9
B	1.4/3.2
C	0.8/2.6



V.P.S

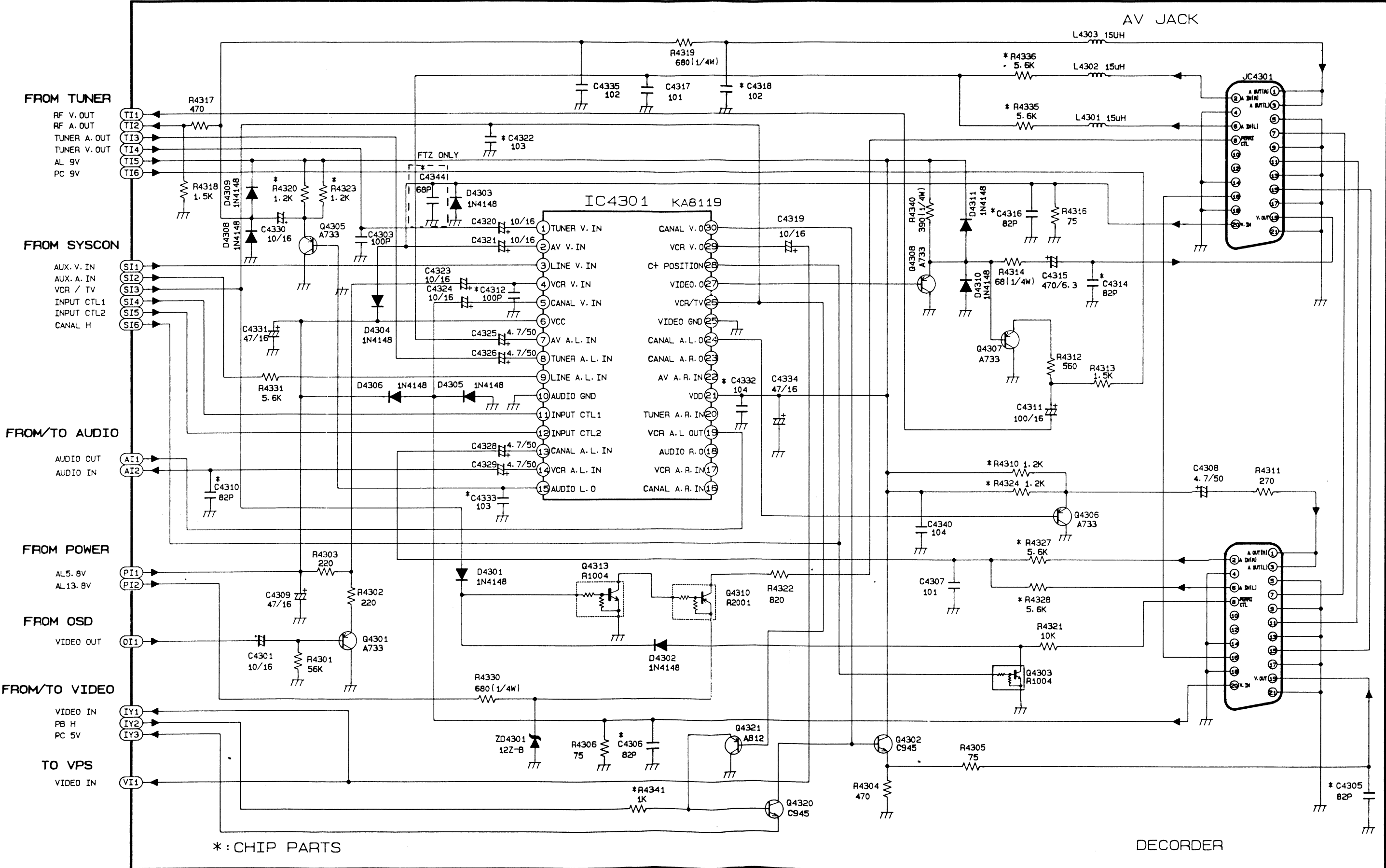
12-7. V.P.S



I/O

I/O

12-8. I/O (2 SCART ONLY)



I/O

MODE PIN NO	E-E
IC4301	
1	3.9
2	3.4
3	3.2
4	3.9
5	3.4
6	5
7	5.6
8	5.6
9	5.7
10	0
11	4.8
12	0
13	5.7
14	5.7
15	4.2
16	
17	
18	
19	4.2
20	
21	9
22	
23	
24	4.2
25	0
26	5
27	2.4
28	0
29	2.4
30	1.5

MODE PIN NO	E-E	BLUE
Q4301		
E	1.3/3.4	1.5/2.9
B	0.6/3.2	0.8/2.2
C	0	0
Q4307		
E	2.1/4.2	2.1/3.4
B	2.7/4.8	2.8/4
C	0	0
Q4308		
E	2.1/4.2	2.1/3.4
B	1.4/3.5	1.4/2.7
C	0	0

I/O

TUNER V. IN

AV V. IN

LINE V. IN

VCR V. IN

CANAL V. IN

VCC

AV A. L. IN

TUNER A. L. IN

LINE A. L. IN

AUDIO GND

INPUT CTL1

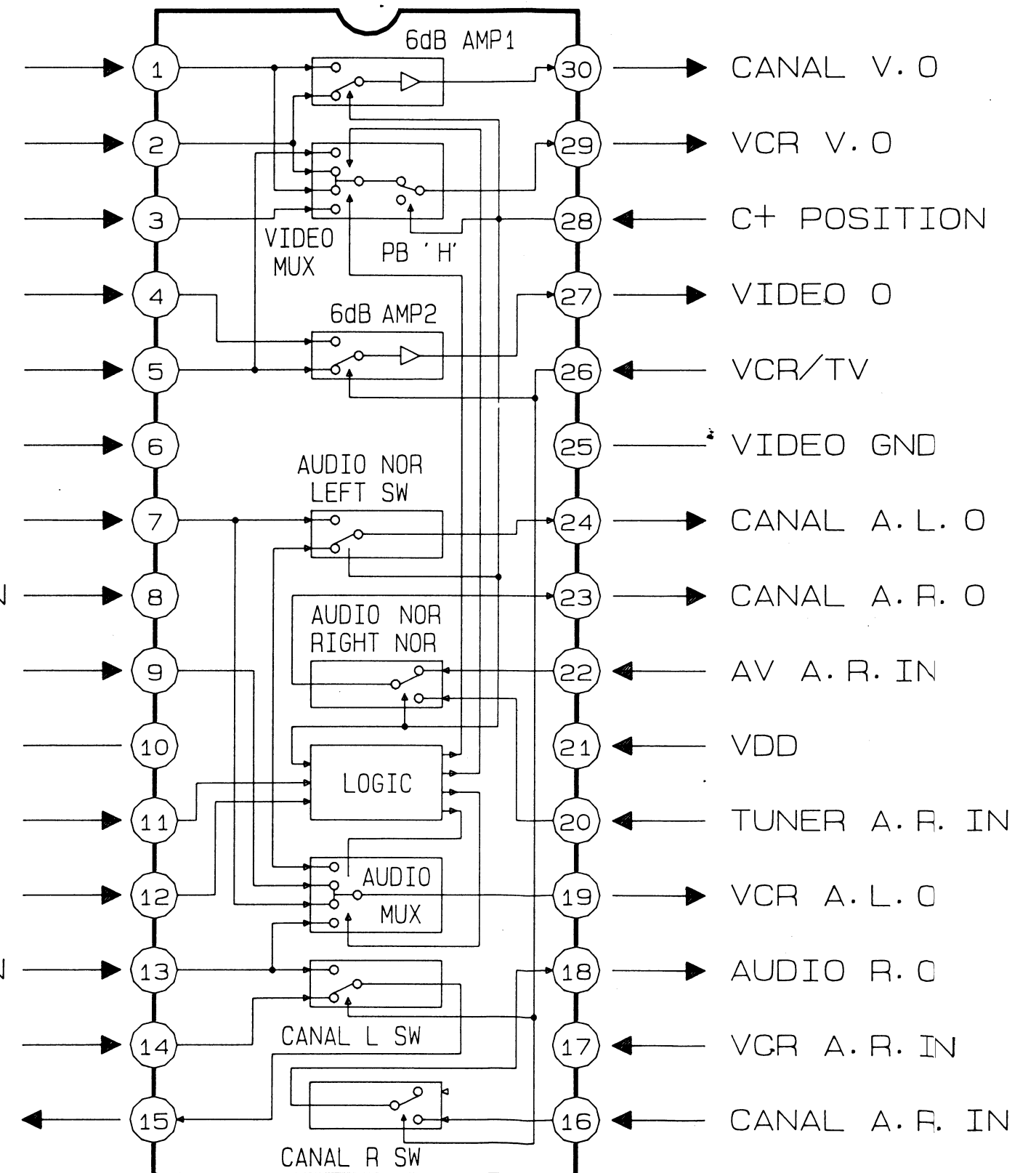
INPUT CTL2

CANAL A. L. IN

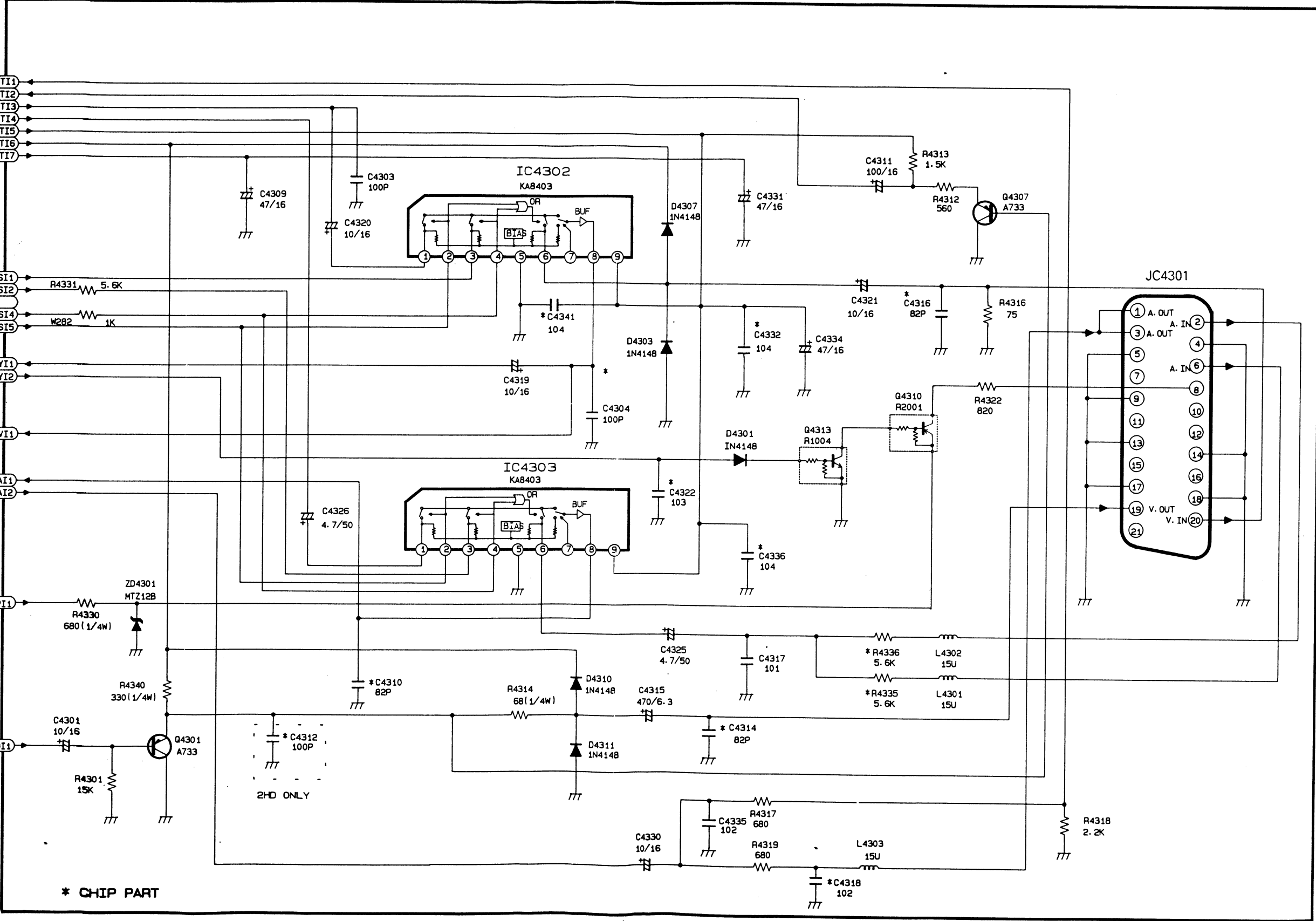
VCR A. L. IN

AUDIO L. O

IC4301 KA8119

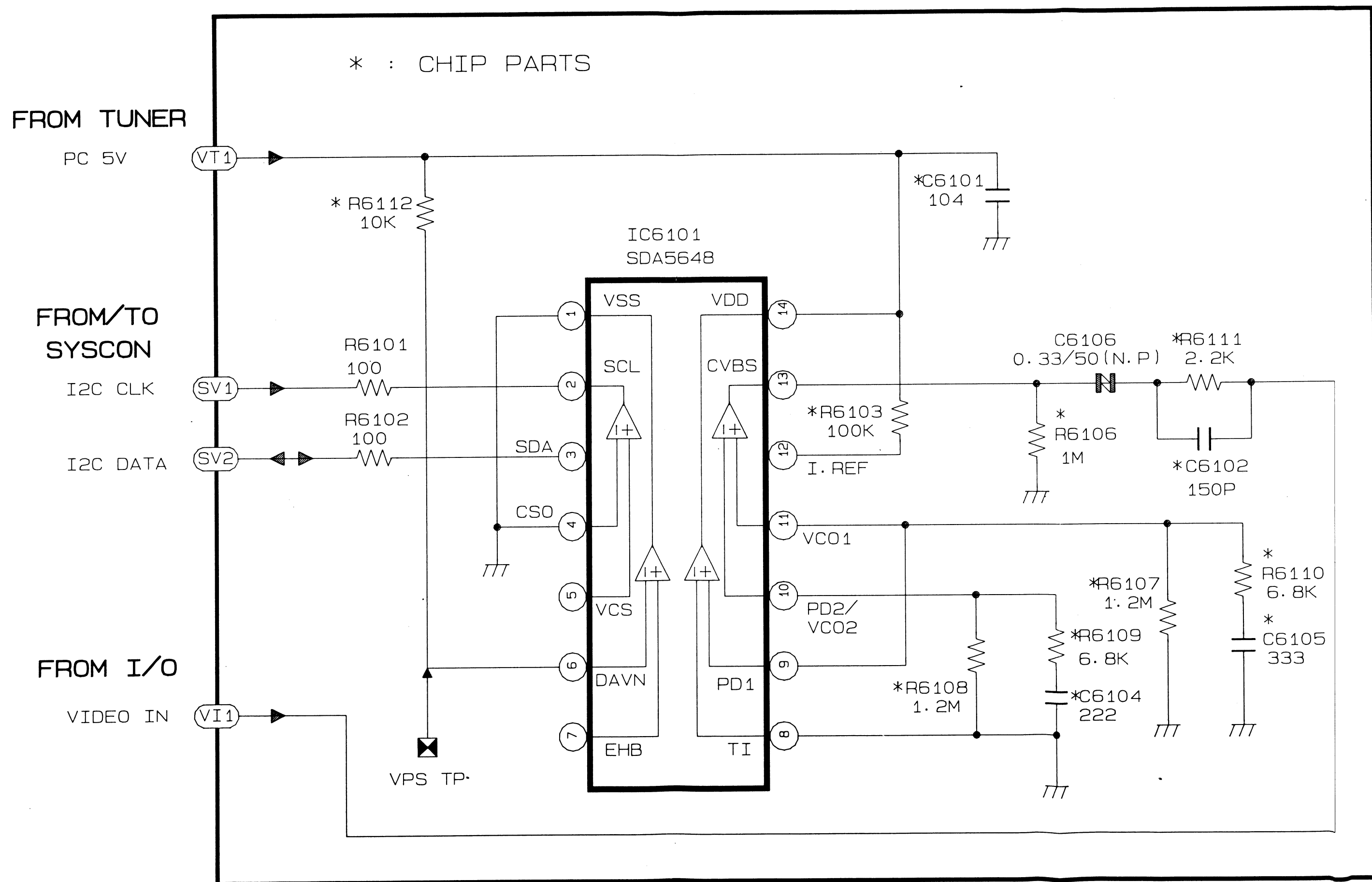


12-9. I/O (1 SCART ONLY)



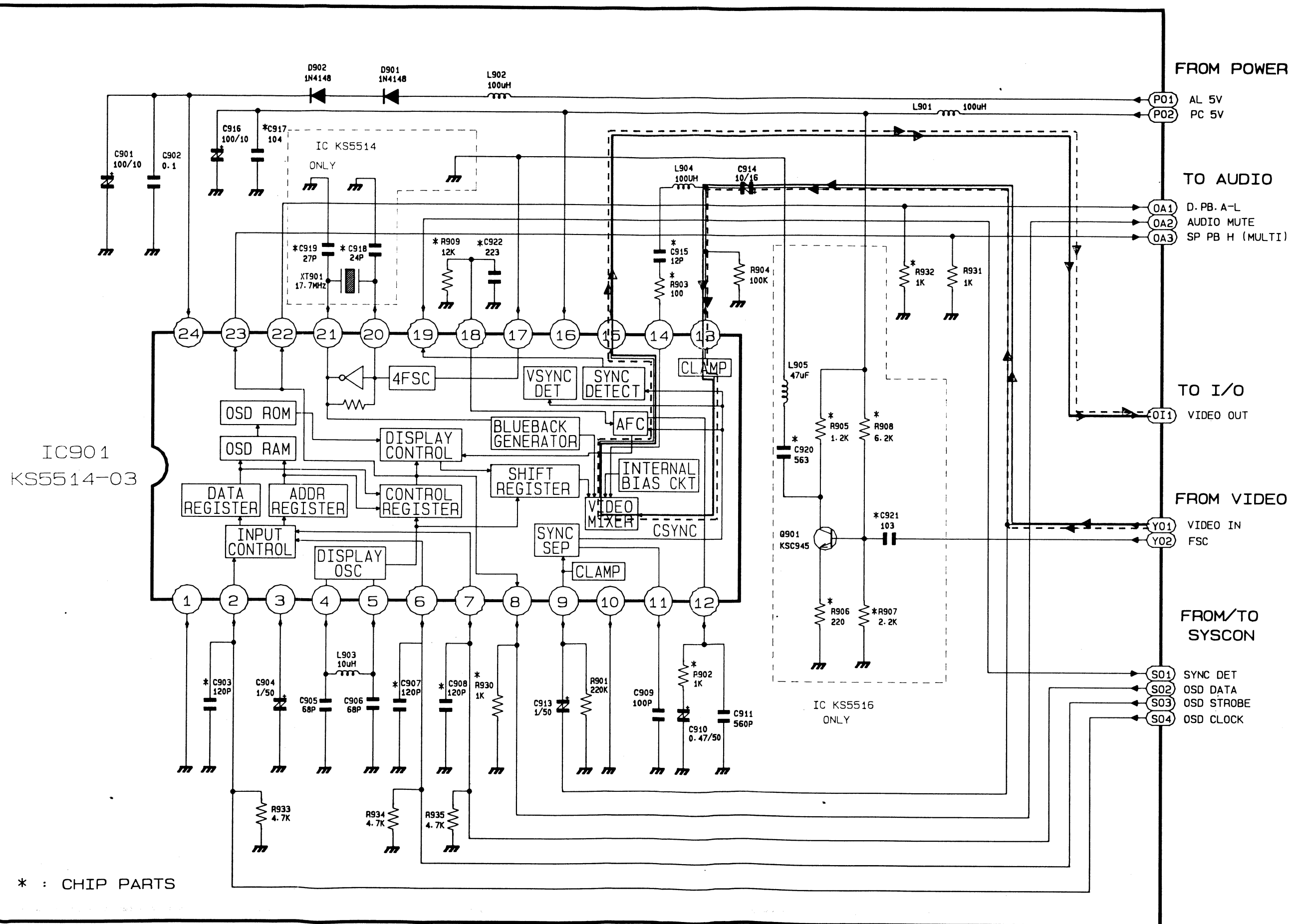
	CTL1	CTL2
A/V	0	0
AUX	0	1
TUNER	1	0

12-10. P.D.C



12-11. O.S.D

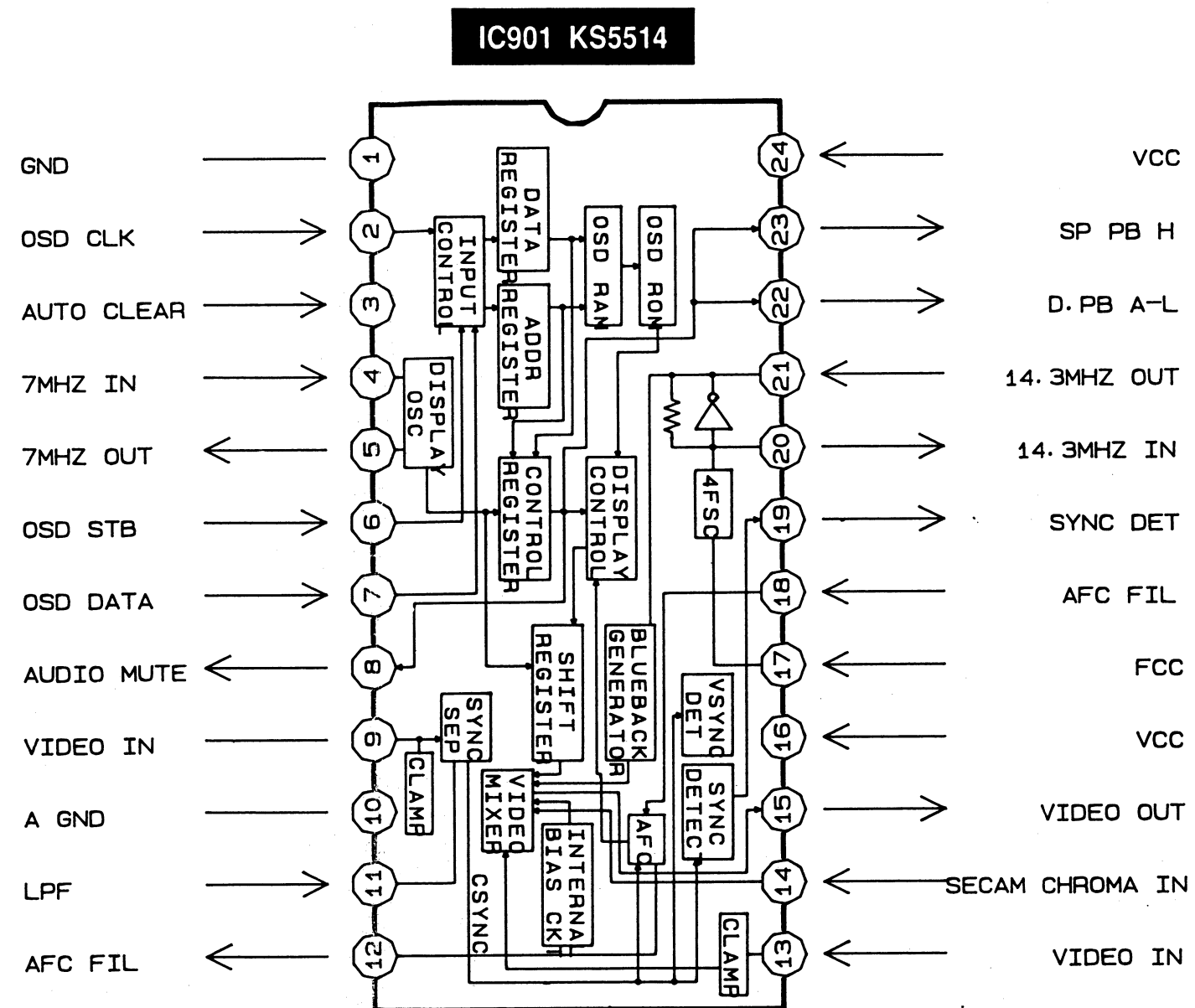
RED ——— PB PROCESS
 ----- REC PROCESS



O. S. D

MODE PIN NO	E-E	BLUE
IC901		
1	0	0
2	0 - 4	0 - 4
3	3.6	3.6
4	1.9	1.9
5	1.5	1.5
6	0 - 4	0 - 4
7	0 - 4	0 - 4
8	0.8	0.8
9	1.6	2.2
10	0	0
11	1.9	2.4
12	2.2	4.6
13	1.6	2.1
14	1.9	2.1
15	3.0	3.0
16	4.9	4.9
17	0	0
18	0.7	0
19	0	4.9
20	1.8	1.8
21	1.8	1.8
22	0.9	0.9
23	3.9	3.9
24	3.6	3.6

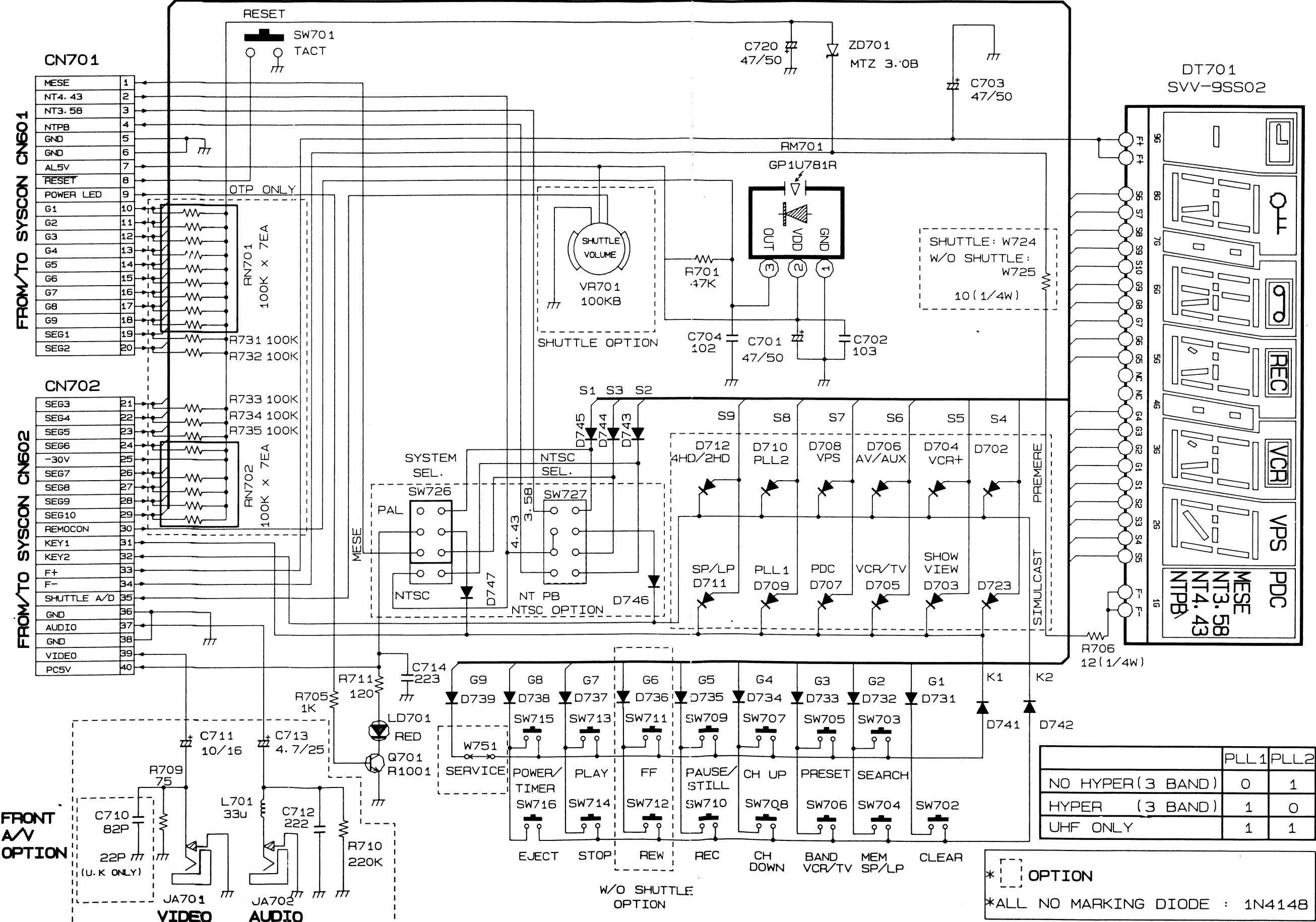
O. S. D



FUNCTION-TIMER

12-12. FUNCTION-TIMER

FUNCTION-TIMER



REMOTE CONTROL

12-13. REMOTE CONTROL

